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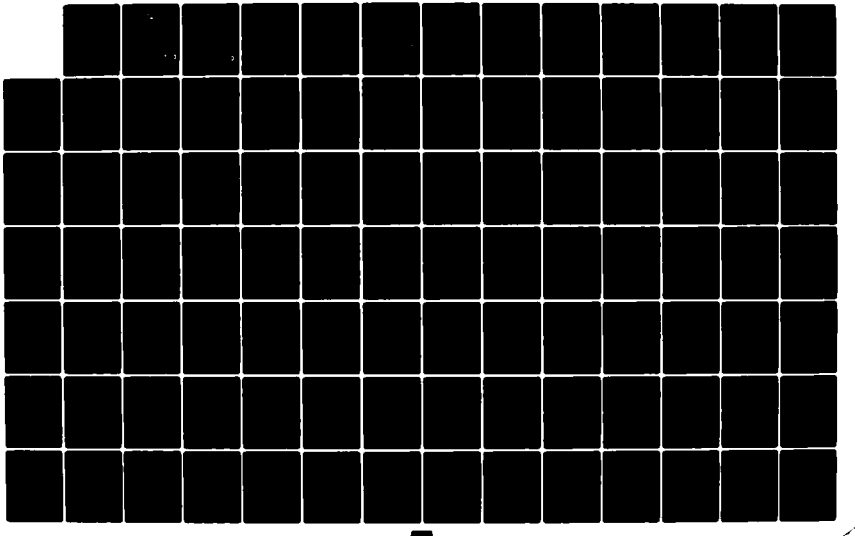

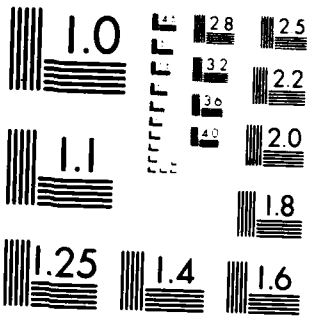

DEPARTMENT OF THE AIR FORCE

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Wright-Patterson Air Force Base, Ohio

AN EVALUATION OF AN ATTITUDINAL *MODEL TO MEASURE THE POTENTIAL* FOR COMBAT EFFECTIVENESS OF U.S. AIR FORCE ORGANIZATIONS

Steven D. Waller, Captain, USAF

LSSR 39-82

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This study addressed the measurement of combat readiness (potential for combat effectiveness) in Air Force units. The central theme concerned the need to include psychosocial dimensions in any measure of combat readiness. The major psychosocial dimensions which contribute to combat effectiveness of a military unit (morale, leadership, cohesion, and willingness to fight) were identified in a literature review. Factor analysis was used to identify the psychosocial dimensions contained in a model to measure the potential for combat effectiveness of Air Force units. Bivariate and multiple correlation analysis was used to compare the dimensions of the combat effectiveness model with the measures from the Organizational Assessment Package. Multiple regression was used to determine if the dimensions of the combat effectiveness model were significant predictors of perceived organizational readiness. The findings identified three major psychosocial dimensions in the combat effectiveness model (morale, leadership, and cohesion) in addition to training, logistics, alienation, and work group conflict. The correlation analysis identified several strong and significant relationships between the Organizational Assessment Package and the combat effectiveness model. The regression analysis identified all the dimensions of the combat effectiveness model as significant predictors of perceived combat readiness except alienation.

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AN EVALUATION OF AN ATTITUDINAL MODEL TO MEASURE THE POTENTIAL FOR COMBAT EFFECTIVENESS OF U.S. AIR FORCE ORGANIZATIONS

A Thesis

Presented to the Faculty of the School of Systems and Logistics

of the Air Force Institute of Technology

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In Partial Fulfillment of the Requirements for the

Degree of Master of Science in Engineering Management

By

Steven D. Waller, BSCE
Captain, USAF

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has been accepted by the undersigned on behalf of the faculty of the School of Systems and Logistics in partial fulfillment of the requirements for the degree of

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CHAPTER 1

INTRODUCTION

The purpose of this research is three-fold. First, I will identify the major psychosocial dimensions (or factors) that contribute to the combat effectiveness of military units as measured by the combat effectiveness model, an instrument developed by the Air Force Leadership and Management Development Center (LMDC). Second, this research will evaluate the relationship between the Organizational Assessment Package (OAP), an instrument used to collect diagnostic data on organizations visited by LMDC, and the combat effectiveness model. This latter objective attempts to determine if any of the dimensions in the OAP are also measured in the new combat effectiveness model. Third, I will determine if the dimensions contained in the combat effectiveness model are significant predictors of an organization's combat readiness (potential for combat effectiveness).

JUSTIFICATION

Since the end of American involvement in Vietnam and the establishment of the all-volunteer military, considerable criticism has been levied against the methods employed by the military services in measuring the combat readiness or

effectiveness of U.S. forces. This criticism has ranged from accusations of a lack of integrity among those reporting the criterion by which combat readiness is measured to the very dimensions considered important in determining the combat effectiveness of our military forces.

In the late 1970's several studies identified the lack of validity in the U.S. Army's unit readiness reporting (Kerner and Omara, 1981; Omara, 1981; and Sarkesian, 1980). This critical condition was reflected in the opinion of 70% of those surveyed that their unit's readiness report did not reflect the true readiness condition of their unit. Forty percent of the respondents said they had been subjected to what they considered to be unjustified pressure to raise their unit's readiness rating. Fifty-eight percent felt that their integrity had been challenged by the demands of the system (Sorley, 1980). The findings and recommendations of these studies led to changes in December 1979 of the U.S. Army's reporting system, but the effectiveness of the changes to resolve the problems is "far less clear". The abuse in the reporting system has been tied to the requirement of having subordinates report indicators of combat readiness on which they know they are going to be rated in comparison with their peers. This procedure has placed a strain on the personal integrity of those compiling the information. The proposed solution has been to reduce the reliance on quantitative statistics reported by the units themselves as much

as possible, and where reduction is impossible, to avoid using tabulated data for comparative evaluations (Sorley, 1979). Presently no literature has been discovered by the author to support the concept that the same lack of validity and abuse is present in Air Force units. Perhaps the Operational Readiness Inspection system used by the Air Force prevents these problems from developing.

Air Force Regulation 55-15 (Combat Readiness Reporting) establishes the guidelines for commanders to determine the combat readiness of their units. The regulation identifies four essential areas (measured resources) which are used to establish the unit's ability to accomplish the assigned mission: personnel, equipment and supplies on hand, equipment readiness, and training. AFR 55-15 realizes that these measured resource areas are purely objective factors (essentially a "count" of assets that impact readiness) that are used as guides to provide the commander with the necessary information to judge unit readiness. In recognizing the limitation of a pure objective measure, the regulation requires consideration of subjective factors in establishing the final rating of the unit.

The lack of adequate measurements of subjective factors has caused several authors to criticize the military's reporting system as relying too heavily on objective factors and discounting the importance of the subjective factors which contribute to overall combat effectiveness. In a

critical analysis of the present system for measuring combat effectiveness in the U.S. military, Sarkesian (1980) made several conclusions about the methods and results. First, he felt that the current measuring and reporting system was distorted by the emphasis on "quantitative data to the degradation of qualitative and sociopolitical considerations, combined with the professional 'can do' and career success orientation" (Sarkesian, 1980:15) of those reporting the measurements. Second, he expressed a deficiency of current studies on combat effectiveness to consider "ideological components and psychological motivations of the individual soldier" (Sarkesian, 1980:15). Third, he concluded that there is a great deal of difficulty in translating subjective factors into criteria for combat effectiveness. Fourth, he found that measurement of combat effectiveness must include the political-social dimensions as it measures the degree of value reinforcement and compatibility between society and the military system prevalent in the post-Vietnam era. Finally, based on the conclusions of the review and the deficiencies of current reporting or measuring systems, he concluded that the measures of combat effectiveness of the American military volunteer are highly suspect.

In addressing these shortfalls of the current system for measuring combat effectiveness, Sarkesian (1980) provided some general "policy changes or emphasis". One of the areas addressed by Sarkesian (1980:16) deals with the

> need to develop more valid indicators of combat effectiveness, those that are particularly important in identifying political psychological factors and the motivations that are essential for military cohesion in terms of the individual soldier, leaders, and unit integrity.

This will involve a reassessment of the conceptual basis for determining combat readiness to insure that readiness is not viewed in isolation from cohesion, effectiveness, and credibility (Sarkesian, 1980). The serious nature of this problem is presented in the following statement by Sarkesian (1980:18):

> The fact remains that unless there is a professional recognition of the different dimensions of combat effectiveness, from the nature of the international security environment to the qualitative imperatives of unit readiness, the ability of the American military to perform effectively in combat will be seriously impaired. Combat effectiveness, restricted by narrow traditional perceptions and influenced by self-serving professional motivations, can only lead to serious policy misjudgements.

The belief that the present dimensions of measuring combat effectiveness overlook the qualitative and sociopolitical factors, and the concern for including these missing measurements in an assessment of Air Force combat effectiveness, prompted LMDC to develop an instrument to measure the potential for combat effectiveness in units visited by the LMDC consultation teams (the combat effectiveness model, Appendix D and the combat effectiveness questionnaire, Appendix C). The instrument measures combat effectiveness on an individual perceptual level and includes measures of a variety of dimensions or factors which encompass a wide range

of subjective areas as well as extracting individual perceptions of typical objective measures of combat effectiveness. The indepth discussion of the dimensions included in the instrument is presented in Chapter 3.

PURPOSE OF THE LEADERSHIP AND MANAGEMENT DEVELOPMENT CENTER

In 1975 the Air Force created the Leadership and Management Development Center (LMDC), Maxwell Air Force Base, Alabama, following the recommendations of the Air Force Management Improvement Group (AFMIG) (LMDC, 1981). The LMDC was tasked to provide: (1) Air Force personnel better leadership and management education on a worldwide basis, and (2) instruction and consultation services in the field of leadership, management, and job enrichment. LMDC is currently staffed with approximately 162 persons, of which 49 are assigned to the Directorate of Management Strategies and Education (May, 1982). The Directorate of Management Strategies and Education operates as a management consulting service for commanders and their subordinate managers within the Air Force. The ultimate goal of the Directorate is to "enhance USAF combat effectiveness through increased motivation and productivity of Air Force members" (LMDC, 1981:1). To accomplish this goal, the LMDC provides to commanders a management consultation service to help improve the leadership and management skills of their people.

The Management Consultation Service is available only upon the request of the major unit commander or agency chief. LMDC consultants are trained to assist supervisors, at all levels, to enhance organizational effectiveness through a systematic program. The program involves a visit by LMDC consultants whereby they administer a survey to measure the organizational members' perceptions on a wide range of leadership and management issues, conduct interviews with key personnel, and gather management data. The information is analyzed at Maxwell Air Force Base by the consultants to identify strengths and weaknesses of the organization. The team will then return to the unit and provide feedback on their findings to all supervisors and will aid in the establishment of management action plans to correct problem areas noted in the analysis. The entire consulting process is conducted between the organization and LMDC and strict confidentiality is maintained with all participants.

THE ORGANIZATIONAL ASSESSMENT PACKAGE

The LMDC consultants collect a variety of diagnostic data when performing the consultation service, but the primary means of collecting information on the organization involved is through the use of a fixed-response questionnaire called the Organizational Assessment Package (OAP). The OAP survey instrument was developed jointly by the Air Force Human Resources Laboratory, Brooks Air Force Base, Texas, and

LMDC specifically to meet the mission objectives of LMDC. The goals of the OAP in support of the LMDC mission are described by Hendrix and Halverson (1979:5) as follows:

> First, the OAP provides a means of identifying existing strengths and weaknesses within organizational work groups, such as directorates. Second, research results can be fed back into their Professional Military Education; other leadership and management training courses; and when action is required, to Air Staff and functional offices of primary responsibility. Lastly, the OAP data base established can be used for research to strengthen the overall Air Force organizational effectiveness program.

Hendrix and Halverson (1979) conducted the initial validation of the OAP. Since the initial validation, LMDC has refined the instrument to its current form (see Appendix C) through continual analysis of operational data. The OAP is a 109-question survey containing demographic items and attitudinal questions. The attitudinal questions have been grouped into 27 factors. These factors measure a variety of job-related issues as well as issues relating to communications, supervision, and performance within the organization. These factors have been grouped into a systems model to evaluate three aspects of the work group: input, process, and output. The input portion of the model includes demographics, work itself, and job enrichment. The work itself dimension incorporates task properties (technologies) and environmental conditions of the job. The job enrichment concept assesses the degree to which the job itself is interesting, challenging, meaningful, and responsible. The process portion of the

model assesses a work group's pattern of activities and interaction among group members. The output element of the model measures task performance, group development, and effects on group members (LMDC, 1982). Each of the three elements of the model are measured by a set of factors, each factor consisting of various questions contained in the OAP. (For an explanation of each factor, refer to Chapter 3).

RESEARCH QUESTIONS

At the request of the LMDC, this research effort was initiated. LMDC developed a combat effectiveness questionnaire (Appendix B) and a proposed combat effectiveness model (Appendix D). The need to thoroughly identify the psychosocial dimensions of the combat effectiveness model led to the following research question.

> Research Question 1: What are the major psychosocial dimensions that contribute to the combat effectiveness of a military unit as measured by the combat effectiveness model?

Additionally, the need to determine if any of the concepts measured by the combat effectiveness model are related to those in the OAP resulted in the formulation of the second research question.

> Research Question 2: Are any of the dimensions measured by the combat effectiveness model significantly related to those factors in the Organizational Assessment Package?

Finally, the formulation of the third research question was prompted by the desire to determine if the dimensions contained in the combat effectiveness model would be significant predictors of an organization's combat readiness as perceived by its members.

> Research Question 3: Are the dimensions measured by the combat effectiveness model significant predictors of an organization's combat readiness (potential for combat effectiveness) as perceived by its members?

SUMMARY

The research questions have been formulated to fulfill the three objectives of this research effort: (1) to identify the major psychosocial dimensions that contribute to the combat effectiveness of military units as measured by the combat effectiveness model, (2) to analyze the two instruments (OAP and combat effectiveness model) for similarity of measured dimensions, and (3) to determine the significance of the dimensions as predictors of an organization's combat readiness (potential for combat effectiveness).

Chapter 2 presents the literature review conducted to identify the psychosocial dimensions contained in various studies on combat effectiveness. Chapter 3 examines the research methodology employed to answer research questions 1, 2, and 3. Chapter 4 contains the results. Chapter 5

summarizes the findings and presents recommendations and conclusions established as the result of this research.

CHAPTER 2

LITERATURE REVIEW

> In warfare the force of armies is the product of the mass multiplied by something else; an unknown x.
>
> Military science, seeing in history an immense number of examples in which the mass of an army does not correspond with its force, and in which small numbers conquer large ones, vaguely recognizes the existence of this unknown factor, and tries to find it sometimes in some geometrical disposition of the troops, sometimes in the superiority of weapons, and most often in the genius of the leaders. But none of those factors yield results that agree with the historical facts.
>
> One has but to renounce the false view that glorifies the effect of the activity of heroes of history in warfare in order to discover this unknown quantity x.
>
> X is the spirit of the army, the greater or less desire to fight and to face dangers on the part of all men composing the army. . . [Tolstoy, 1904:268].

The importance of the unknown quantity x is just as important in today's modern military as it was in Tolstoy's days. The thrust of this chapter is to identify the major factors which make up the unknown quantity x. This will be accomplished through a review of classical military studies dealing with troop performance in combat and research efforts studying combat performance of military units. The end result of this chapter will be to provide an assessment of the major psychosocial dimensions (subjective factors)

considered by previous researchers and theorists that contribute to the combat effectiveness of a military unit.

MAJOR PSYCHOSOCIAL FACTORS

Dupuy and Hammerman (1980) conducted an extensive review of classical military studies dealing with troop combat performance, memoirs of commanders, and accounts of combat stretching from the early 16th century to the 1973 Arab-Israeli War. The outcome of their review produced a consensus on a number of points related to troop behavior.

> 1. Leadership is crucial to combat success.
> 2. Unit cohesion and loyalty are crucial to combat success.
> 3. Unit training under realistic conditions, and/or combat experience is extremely important to combat success.
> 4. Discipline and drill are valuable in forming capable soldiers and cohesive units.
> 5. The factors listed above can outweigh opposing superior numbers [Dupuy and Hammerman, 1980:2].

In addition to the factors listed above, other literature indicated that morale and the willingness to fight are also major contributors towards a unit's combat effectiveness. The remainder of this chapter will discuss individually each of the psychosocial factors identified in the literature as major contributors to a unit's combat effectiveness: (1) cohesion, (2) morale, (3) leadership, and (4) willingness to fight.

Cohesion

The importance of cohesion in the combat effectiveness of a military unit has been repeated throughout the

literature. Probably the most definitive, if not one of the earliest works in the importance of cohesion in combat success, is the Shils and Janowitz (1948) study of the German Army. Shils and Janowitz found that the German Army maintained a high degree of organizational integrity and fighting effectiveness to the very end of the war. They attributed the sustained effectiveness of German units to the cohesion built around loyalties generated and sustained by primary groups. German soldiers and their officers comprised a supporting web of personal relationships generated by their continued involvement in combat situations. Soldiers developed a responsibility to their peers and superiors born out of mutual risk, hardship, and the feeling that their superiors truly cared for their welfare and were willing to expose themselves to the same risks faced by the troops. Through this process the group was able to sustain itself under the stressful conditions of combat. The unit became more than the sum of its parts, and the individual attachment to the unit was truly corporate in nature.

Shils and Janowitz (1948) had anticipated their findings based on the conclusions of the study of American soldiers in World War II by Marshall (1947). Marshall concluded that primary group cohesion was the mainspring of combat effectiveness and that a sense of community among a group in the same situation enabled individual soldiers to fight as a coordinated group despite the terrors of the modern battlefield.

> I hold it to be one of the simplest truths of war that the thing which enables an infantry soldier to keep going with his weapons is the near presence or the presumed presence of a comrade [Marshall, 1943:42].

In a more comprehensive study of the American soldier during World War II, Stouffer et al. (1949a) and Stouffer et al. (1949b) examined group dynamics and combat effectiveness widely. Their findings also supported the idea that effectiveness of a combat unit was generally a function of unit cohesiveness. This cohesion was the result of an intense bond stemming from shared risk and achievement.

Torrance et al. (1957), in a study to determine why certain pilots were providing the majority of kills in air-to-air combat in the Korean Conflict, identified 20 situational factors from interviews of fighter-intercepter pilots. The interview data suggested that cohesion, measured by several situational factors, did, indeed, influence the combat effectiveness of units.

Clark (1969) and Downey, Duffy, and Shiflett (1975) also provided evidence of the major role cohesion plays in the combat effectiveness of military units. Clark (1969) studied 69 rifle squads from the Korean Conflict. As a result of his research, he identified two kinds of variables which related to combat effectiveness. One set was labeled "group structures of values" and it dealt with interpersonal relations in the squad and group-held values. Analysis yielded indices for group cohesion, group loyalty, and

development of group goals. These indices provided significant relationships (level of significance, $p<.05$, $<.04$, $<.001$, respectively) to squad effectiveness.

Downey et al. (1975) attempted to develop several measures to assess leadership effectiveness. They administered questionnaires to members of the 12th Special Forces Reserve Group (Airborne) during a two-week field training exercise. Using the analytical technique called factor analysis, one scale was identified and labeled group cohesion. Downey et al. found that mission effectiveness and unit performance both correlated with group cohesion for the various groups studied (Pearson product-moment correlation coefficient, r, ranged from .49 to .66.

Gabriel (1978) and Jacobowitz (1980), in their respective articles, both emphasized the importance of cohesion in the effectiveness of military units. Jacobowitz (1980) addressed the problem of American society becoming more alienated and anomic over the past several decades. He went on to propose the means by which today's military can overcome the disruptive effects of alienation and anomie to produce a cohesive military force which he felt was vital to producing an effective combat force. Gabriel (1978), on the other hand, compared the Soviet and American military models of military cohesion and training techniques. Gabriel (1978:16) stated, "No army can be considered effective unless it can rely upon its units to cohere under the terrifying stress of combat". Gabriel (1978:22) stated:

> cohesion is a function of strong personal loyalties to small groups developed through and sustained by a feeling that all participants are united by similar hardship, risk, and fear, and by the understanding that their leaders will endure similar conditions.

When these conditions are not present, as has been suggested of American troops in Vietnam, no amount of technological advances can produce effective, cohesive military units (Gabriel and Savage, 1978).

Morale

The importance of morale to the combat effectiveness of a military unit can be expressed by the following excerpt from Richardson (1978:21), which has been recognized as one of the classical studies on morale.

> "The MORALE of the soldier is the greatest single factor in war." In these words Field-Marshal Montgomery summarized what generals and military writers have been saying since the fourth century B.C.

Several military studies (Karst, 1973; Marshall, 1947; Sarkesian, 1980; and Stouffer et al., 1949b) have provided support for the importance of morale; however, two studies (Baynes, 1967 and Richardson, 1978) have concentrated on morale's contribution to the success of military units.

Baynes (1967:92) stated "the maintenance of morale is recognized in military circles as the most important single factor in war" and proceeded to conduct an indepth study of one combat unit during a single battle of World War I. Baynes (1967:108) spent considerable effort in developing

the following definition of morale which he used to identify the characteristics of a group which led to high morale.

> High morale is the most important quality of a soldier. It is a quality of mind and spirit which combines courage, self-discipline, and endurance. It springs from infinitely varying and sometimes contradictory sources, but is easily recognizable, having as its hall-marks cheerfulness and unselfishness. In time of peace good morale is developed by sound training and the fostering of esprit de corps. In time of war it manifests itself in the soldier's absolute determination to do his duty to the best of his ability in any circumstances. At its highest peak it is seen as an individual's readiness to accept his fate willingly even to the point of death, and to refuse all roads that lead to safety at the price of conscience.

Baynes (1967) identified several characteristics of high morale in both peacetime and war. He presented the following characteristics of high morale in peacetime: (1) a quality of cheerfulness; (2) pride in one's self, his job, and unit; (3) the group's behavior (a lack of bad discipline); (4) visitors being well received by members; and (5) sharp salutes from members of the unit. During battle he found the following traits which indicated high morale: (1) cheerfulness, (2) physical hygiene and numbers reporting sick, (3) not suffering unnecessary casualties, and (4) readiness to accept responsibility. Morale is not the sole means of success in combat, but unit morale can make a bad plan successful and a good plan fail.

Richardson (1978) continued the study of morale and presented his "Analysis of Morale", which broke down morale into three elements: (1) the soldier's personal or individual

morale, (2) the soldier's morale as a member of a small group, and (3) the morale of the unit as a whole.

Personal morale was sustained by mental and physical factors, with mental factors being the most important. The physical factors included good health, food, adequate rest, and other amenities permitted by the conditions. The mental factors encompassed an understanding of the cause the soldier was fighting for, self-confidence in his ability, sound religious beliefs and moral principles, and a sense of responsibility for others. Group morale was sustained by a contented unit with confidence in its leaders, a confidence in its comrades, and a determination not to let down friends or the unit (Richardson, 1978). Unit morale was comprised of unit esprit de corps and the established tradition of the unit. Richardson (1978) felt the result of failing to maintain the morale of a unit resulted in a psychiatric casualty, an individual who was unable to withstand the stresses of combat and thus resulted in the reduced effectiveness of the unit.

The above historical studies have provided support that morale is important in an effective combat unit. Gaither (1975) applied this belief in an analysis of the disintegration of Merrill's Marauders during World War II. Based on recorded testimony, Gaither (1975) attributed the complete breakdown of morale in June of 1944 to poor discipline, the effect of rotating commanders, a feeling of inferiority by the unit, a lack of attention, and broken promises.

Downey et al. (1975) identified one factor as morale in their study. Their results indicated a fairly strong correlation with an effectiveness criterion (r = .52 to .77) for each group surveyed.

Bigelman (1978) introduced a measurement for morale into the Lanchester-Type Combat Model employed in his master's thesis. He found that various levels of morale could influence the outcome of a battle by affecting the fraction of ineffective combatants engaged in combat.

Torrance et al. (1957:10) found morale to be one of the factors which contributed to kills by fighter-intercepter pilots from their interviews. "A large portion of the men interviewed mentioned the role of morale or esprit de corps in making the individual pilot perform better."

Leadership

The importance of leadership in combat effectiveness has been the center of focus for centuries by military historians and scholars. By the end of World War II, sociological and psychiatric thinking were being applied to military problem solving. The relevance of these new modes of inquiry was recognized by the military and General Eisenhower gave instructions to institute a course in military leadership at West Point (Sarkesian, 1980). The importance of leadership can be seen today by the incorporation of leadership classes in each service's professional military education programs. The importance of leadership in a combat effective force has

been reinforced by numerous historical studies and research efforts (Blanck, 1977; Clark, 1969; Hoiberg, 1980; Koman, 1973; Marshall, 1947; Stouffer et al.,1949a; and Stouffer et al., 1949b).

Marshall (1947) addressed the importance of leadership in his study. He identified several leadership characteristics that would lead to the combat success of a unit. He felt that a commander should associate with his troops and gain a knowledge of what was happening in the field through contact with his men. Additionally, a good leader should show a keen interest in the welfare of his troops and deal with them at a level which shows respect for their adulthood. The ability to think clearly and quickly make decisions in the face of unexpected contingencies or opportunities was considered the real test of fitness for command (Marshall, 1947). Additionally, Marshall (1947) considered the following leader characteristics important for commanders: (1) diligence in the care of men; (2) administration of all organizational affairs to a standard of justice; (3) military bearing; (4) courage, creative intelligence, and physical fitness; and (5) innate respect for the dignity of the position and work of other men.

Marshall (1947) contended that leadership is necessary to counter the fear present when men enter combat and that a lack of leadership only makes men more fearful.

Torrance et al. (1957) identified several situational factors concerning leadership which were perceived as

significant in influencing the combat effectiveness of fighter-intercepter pilots of the Korean Conflict. The factors included confidence in leadership, identification with a superior leader, the role of the commander as a fighter, and leadership techniques.

Clark (1969) identified five "leadership functions": (1) managing the squad, (2) defining rules and procedures for acceptable behavior, (3) performing as a model, (4) teaching squad mates, and (5) sustaining squad members with emotional support. Clark's analysis of the five functions revealed that each one made a significant contribution to the effectiveness of the squads studied ($p = .001$). The relationships discovered in Clark's (1969) study led to his development of the "Theory of Functional Leadership".

Downey et al. (1975) identified factors labeled "Leader Effectiveness" from the two questionnaires administered in their study. The factors dealt with the commander's performance, and the findings revealed a high correlation with mission effectiveness ($r = .61$ to $.88$) across each group in the study.

The above authors have identified characteristics of a good leader and the importance of leadership to a combat effective unit. These concepts are repeated throughout the literature investigating combat effectiveness. In summary, good or bad leadership will directly affect the unit involved and thus will be one of the critical elements in the combat effectiveness of a military unit.

Willingness to Fight

The concept of willingness to fight is often assumed to be automatically present in a soldier. However, the idea of willingness to fight is more than some innate individual characteristic; it is a product of the society from which the soldier springs. The military has the responsibility to mold or reshape the social values of a soldier in order to harness them into an effective fighting force (Hauser, 1980; Karst, 1970; and Koman, 1971). The lack of a strong national will or resolve will find its way into a soldier's individual will to fight and destroy the effectiveness of a combat unit.

Stouffer et al. (1949b) investigated the concept of willingness for combat in soldiers involved in the Normandy invasion of World War II. Their findings revealed a significant relationship between a unit's willingness and the number of nonbattle casualties (the criterion for their studies).

Hauser (1980) discussed the importance of a soldier's willingness to fight and presented a model to measure the concept. His model included submission, fear, loyalty, and pride as the factors which contributed to the willingness to fight. Submission involved a soldier's acceptance of his role in the military and the legitimate military authority of the services. Fear encompasses two types - the fear of the loss of the protection and support of a soldier's unit, and fear of punishment for any cowardly actions. Loyalty

involved one's loyalty to one's "buddies", leaders, unit, country, and cause. Pride refers to the well-trained soldier who is proud of his military skills and proud of his role in his unit's mission.

Hauser's model appears to share similar concepts with those of previously mentioned authors. Nevertheless, his concept of a willingness to fight appears to be one of the more important factors. If a country must use its military forces in war, the soldiers comprising the military must be willing to face the inherent dangers of battle. The effects of the lack of a willingness to fight were indicated in the latter years of the Vietnam Conflict. The result was an almost complete loss of combat effectiveness, as soldiers began refusing to engage in combat (Hauser, 1980).

SUMMARY

As presented in this chapter, the major psychosocial dimensions that contribute to the combat effectiveness of a military unit are cohesion, morale, leadership, and willingness to fight. These four dimensions make up the spirit of an army. Throughout history this spirit has made the difference between victory and defeat on many occasions. Failure to adequately consider psychosocial dimensions (subjective factors) in the measurement of a unit's combat readiness could lead to a critical understatement of the unit's potential for combat effectiveness. Thus, any model designed for

the purpose of measuring the potential for combat effectiveness should include the psychosocial dimensions of cohesion, morale, leadership, and willingness to fight.

CHAPTER 3

RESEARCH METHODOLOGY

This chapter presents the statistical techniques used to answer the three research questions posed in Chapter 1: (1) to identify the dimensions contained in the combat effectiveness model, (2) to determine the relationship between the Organizational Assessment Package and the combat effectiveness model, and (3) to investigate the significance of the dimensions contained in the combat effectiveness model as predictors of perceived organizational readiness. The primary methods of data analysis used in answering the research questions are factor analysis, correlation analysis, and multiple regression analysis. The actual application of each of these methods will be presented later in this chapter following a discussion of the data used in the study and the measures contained in the instruments.

DATA

Source

The data was provided by the Leadership and Management Development Center (LMDC). It was collected as part of the management consultation service offered by LMDC. Management Consultation Teams visited several Air Force bases and

administered the Organizational Assessment Package and combat effectiveness questionnaire. A sample of 5,235 military and civilian personnel from five Air Force bases completed the two surveys. The responses from both questionnaires were provided to the researcher by LMDC. Each case (completed questionnaire data on a respondent) contained demographic information, OAP survey responses, computed OAP factor scores, and combat effectiveness questionnaire responses. There was a total of 5,235 cases provided for this study.

Composition

To allow classification of respondents, each case in the sample contained a variety of information in addition to the demographic questions contained in the OAP. These parameters facilitate analysis of data by LMDC consultants. A number of these parameters is presented in Table 3-1 to help explain the composition of the sample used in answering the research questions.

Instruments

As mentioned earlier, the focus of this research effort is centered around two survey instruments used by LMDC Management Consultation Teams as an integral part of the management consultation service provided to Air Force commanders. These two instruments are the Organizational Assessment Package (OAP) questionnaire and the combat effectiveness questionnaire.

TABLE 3-1

COMPOSITION OF SURVEY RESPONDENTS

Classification Category	Percent
Personnel Category	
Officer	8.5
Enlisted	84.3
Civilian	7.2
Sex	
Male	81.8
Female	18.2
Ethnic Group	
White, not of Hispanic Origin	73.8
Black	13.9
Asian or Pacific Islands	1.3
Hispanic	4.3
American Indian or Alaskan Native	1.7
Other	5.0
Highest Education Level	
Non-high school graduate	1.3
High school graduate or GED	43.6
Less than two years college	29.9
Two years or more college	12.6
Bachelor's Degree	6.6
Master's Degree	4.5
Doctoral Degree	1.5
Total Years in Air Force	
Less than 1 year	7.3
More than 1, less than 2 years	15.5
More than 2, less than 3 years	12.1
More than 3, less than 4 years	10.2
More than 4, less than 8 years	17.2
More than 8, less than 12 years	13.3
More than 12 years	24.4
Career or Employment Intentions	
Planning to retire in next 12 months	2.4
Will continue in/with Air Force as a career	32.7
Will most likely continue in/with Air Force as a career	16.2
May continue in/with the Air Force	22.4
Will most likely not make the Air Force a career	15.2
Will separate/terminate from the Air Force as soon as possible	11.1

Organizational Assessment Package Questionnaire. The OAP questionnaire (Appendix A) is a 109-question attitudinal survey which is used as the principle instrument in data collection by LMDC consultants. The OAP survey contains seven sections: (1) background, (2) job inventory, (3) job desires, (4) supervision, (5) work group productivity, (6) organization climate, and (7) job related issues. The background section contains 16 demographic items. The job inventory section contains 24 items which measure the various dimensions which relate to one's job. The job desires section contains seven questions which cover various job-related characteristics. The supervision section contains 19 questions concerning characteristics of managers and supervisors. The work-group productivity section has five questions which deal with the output of one's work group. The organization climate section contains 19 questions covering the characteristics of one's organization. The final section of the survey, job related issues, has nine questions which measure one's satisfaction with job related issues. The 109 questions in the OAP questionnaire have been grouped into 24 statistical factors and three non-statistical factors which will be explained in detail later in this chapter.

Combat Effectiveness Questionnaire. The combat effectiveness questionnaire (Appendix B) was printed for use by LMDC before final approval was received from the Air Force. As a result, several of the questions contained in the

questionnaire had to be deleted from the instrument. Those items were felt to be too sensitive and failed to gain Air Force approval. In Appendix B, those questions which were deleted are marked by an asterisk. During administration of the survey, respondents were directed to answer the deleted questions with a zero on their response sheet. Following official approval of the instrument, 57 questions out of the original 70 remained in the combat effectiveness questionnaire. The questions included several demographic and informational questions (i.e., questions 16, 25, 41, 47, 49, 66, 67, 68, 69, and 70), while the remainder of the questions measured various dimensions which LMDC felt contributed to the potential for combat effectiveness. The combat effectiveness questionnaire variables were grouped with selected OAP variables to form measures included in the combat effectiveness model (Appendix D). The content of these measures will be presented later in this chapter.

Survey Scale. The scale used for the individual questions in the OAP survey is a seven-point, closed-response, Likert-type scale. This scale was used in all sections of the OAP except the 16-item background information section where a multiple choice scale was used. The responses ranged from 1 (not at all, strongly disagree, and extremely dissatisfied) to 7 (to a very great extent, an extremely large amount, strongly agree, and extremely satisfied).

The combat effectiveness questionnaire also used a seven-point, Likert-type response scale similar to the OAP

with the additional response of 0 (not applicable). The demographic questions at the end of the survey employed multiple choice responses.

ORGANIZATIONAL ASSESSMENT PACKAGE MEASURES

As mentioned in Chapter 1, the 27 factors measured by the OAP are grouped into a systems model (see Table 3-2) to assess three aspects of a work group: input, process, and output (LMDC, 1982). The factors and variables which make up each aspect of the LMDC model are shown in Appendix C.

Input

The LMDC model incorporates background information (demographics), work itself, and job enrichment into the input portion of the model.

Demographics. As mentioned earlier, this section encompasses descriptive or background information about the respondents participating in the OAP survey (see Section V of Appendix C).

Work Itself. The work itself portion of the model measures the task properties (technologies) and environmental conditions of the job. It assesses the patterns of characteristics members bring to the group or organization, and patterns of differentiation and integration among positions and roles. The following factors measure work itself (see Section I, Appendix C, for a listing of OAP variables making up each factor) (LMDC, 1982:2):

TABLE 3-2

LMDC'S ORGANIZATIONAL ASSESSMENT
PACKAGE SYSTEMS MODEL

I. Input
   - A. Demographics
   - B. Work Itself
     1. Job Desires (Need for Enrichment)
     2. Job Performance Goals
     3. Task Characteristics
     4. Task Autonomy
     5. Work Repetition
     6. Desired Repetitive Easy Tasks
     7. Job Related Training
     8. Job Influences (Not a Statistical Factor)
   - C. Job Enrichment
     1. Skill Variety
     2. Task Identity
     3. Task Significance
     4. Job Feedback
     5. Need for Enrichment Index (Job Desires)
     6. Job Motivation Index
     7. OJI Total Score
     8. Job Motivation Index-Additive
     9. Motivation Potential Score

II. Work Group Process
   - A. Performance Barriers/Blockages (Work Support)
   - B. Management and Supervision
   - C. Supervisory Communications Climate
   - D. Organizational Communications Climate
   - E. Work Interferences (Not a Statistical Factor)
   - F. Supervisory Assistance (Not a Statistical Factor)

III. Work Group Output
   - A. Pride
   - B. Advancement/Recognition
   - C. Work Group Effectiveness (Perceived Productivity)
   - D. Job Related Satisfaction
   - E. General Organizational Climate

1. Job Desires: Refers to the job related characteristics (autonomy, personal growth, use of skills, etc.) that the individual would like in a job.

2. Job Performance Goals: Measures the extent to which job performance goals are clear, specific, realistic, understandable, and challenging.

3. Task Characteristics: A combination of skill variety, task identity, task significance, and job feedback to measure several aspects of one's job.

4. Task Autonomy: Measures the degree to which the job provides freedom to do the work as one sees fit; i.e., discretion in scheduling, decision making, and means for accomplishing a job.

5. Work Repetition: Measures the extent to which one performs the same tasks or faces the same type of problems in his or her job on a regular basis.

6. Desired Repetitive Easy Tasks: Measures the extent to which one desires his or her job to involve repetitive tasks or tasks that are easy to accomplish.

7. Job Related Training: Measures the extent to which one is satisfied with on-the-job training received.

8. Job Influences (Not a Statistical Factor): Refers to worker's feeling of accountability to his or her supervisor, and standards of performance.

Job Enrichment. Job enrichment measures the degree that the job itself is interesting, meaningful, challenging, and responsible. The following factors measure job enrichment (see Section II, Appendix C, for variables included in the factors) (LMDC, 1982:2):

1. Skill Variety: Measures the degree to which a job requires a variety of different tasks

or activities in carrying out the work; involves the use of a number of different skills and talents of the worker; skills required are valued by the worker.

2. Task Identity: Measures the degree to which the job requires completion of a "whole" and identifiable piece of work from beginning to end.

3. Task Significance: Measures the degree to which the job has a substantial impact on the lives or work of others; i.e., the importance of the job.

4. Job Feedback: Measures the degree to which carrying out the work activities required by the job results in the worker obtaining clear and direct information about job outcomes or information on good and poor performance.

5. Job Desires: Has to do with job related characteristics (autonomy, personal growth, use of skill, etc.) that the individual would like in a job.

6. Job Motivation Index: A composite index derived from the six job characteristics that reflect the overall "motivating potential" of a job; the degree to which a job will prompt high internal work motivation on the part of job incumbents.

7. OJI Total Score: Assesses one's perception of motivation provided by his or her job.

8. Job Motivation Index-Additive: This factor is a variation of theory employed by other job motivation factors.

9. Motivation Potential Score: This factor is another variation of theory employed by other job motivation factors. It is a composite score ranging between 0 and 343 with 109 being the Air Force average. Low scores indicate a poorly motivating job.

Process

The work group process assesses the pattern of activity and interaction among the work group. The following OAP

factors measure leadership and work group process (see Section III, Appendix C, for variables included in each factor) (LMDC, 1982:2):

1. Performance Barriers/Blockages: Measures the degree to which work performance is hindered by additional duties, details, inadequate tools, equipment, or work space.

2. Management and Supervision: Measures the degree to which the worker has high performance standards and good work procedures. Measures support and guidance received, and the overall quality of supervision.

3. Work Interferences (Not a Statistical Factor): Identifies things which impede an individual's job performance.

4. Supervisory Communications Climate: Measures the degree to which the worker perceives that there is good rapport with supervisors, that there is a good working environment, that innovation for task improvement is encouraged, and that rewards are based upon performance.

5. Organizational Communications Climate: Measures the degree to which the worker perceives that there is an open communications environment in the organization and that adequate information is provided to accomplish the job.

6. Supervisory Assistance (Not a Statistical Factor): Measures the extent to which a supervisor helps the subordinate.

Output

Work group output measures task performance, group development, and their effects on group members. This portion of the model also assesses the quality and quantity of task performance and the alteration of the group's relation to the environment. Additionally, output measures the

changes in positions and role patterns, and in the development of norms within the work group. Finally, this component of the model assesses changes in skills and attitudes, and the effects on individual adjustment. The following OAP factors measure work group output (see Section IV, Appendix C, for variables included in each factor) (LMDC, 1982:2):

1. Pride: Measures the pride in one's work.

2. Advancement/Recognition: Measures one's awareness of advancement and recognition, and feelings of being prepared (i.e., learning new skills for promotion).

3. Work Group Effectiveness (Perceived Productivity): Measures one's view of the quantity, quality, and efficiency of work generated by his or her work group.

4. Job Related Satisfaction: Measures the degree to which the worker is generally satisfied with factors surrounding the job.

5. General Organizational Climate: Measures the individual's perception of his or her organizational environment as a whole (i.e., spirit of team work, communications, organizational pride, etc.).

COMBAT EFFECTIVENESS MODEL MEASURES

In order to more accurately measure the combat readiness of Air Force units, LMDC developed the combat effectiveness model to measure a unit's potential for combat effectiveness. This overall indicator (Potential for Combat Effectiveness) was composed of six different dimensions (see Table 3-3) which LMDC felt would provide a sound measure of a unit's potential for combat effectiveness. Three

TABLE 3-3

HYPOTHESIZED COMPONENTS OF COMBAT EFFECTIVENESS MODEL

I.	State of Training
	A. Job Related Training
	B. Combat Related Training
	C. Effects of Training
II.	Logistics
III.	Will to Fight
	A. Submission
	B. Fear
	C. Loyalty
	D. Pride
IV.	Morale
	A. Individual Psychological Well-Being
	B. Work Group Morale
	C. Collection of Job Related Attitudes
	D. Alienation
V.	Cohesion
VI.	Leadership Qualities/Values

indices (state of training, logistics, and willingness to fight) were combined to give a measure of unit readiness. This readiness index was added to morale, cohesion, and leadership indices to obtain a measure for the unit's potential for combat effectiveness (see Figure 1). The remainder of this section will present a brief explanation of each of the dimensions contained in the combat effectiveness model. A description of the questions comprising each index is contained in Appendix D.

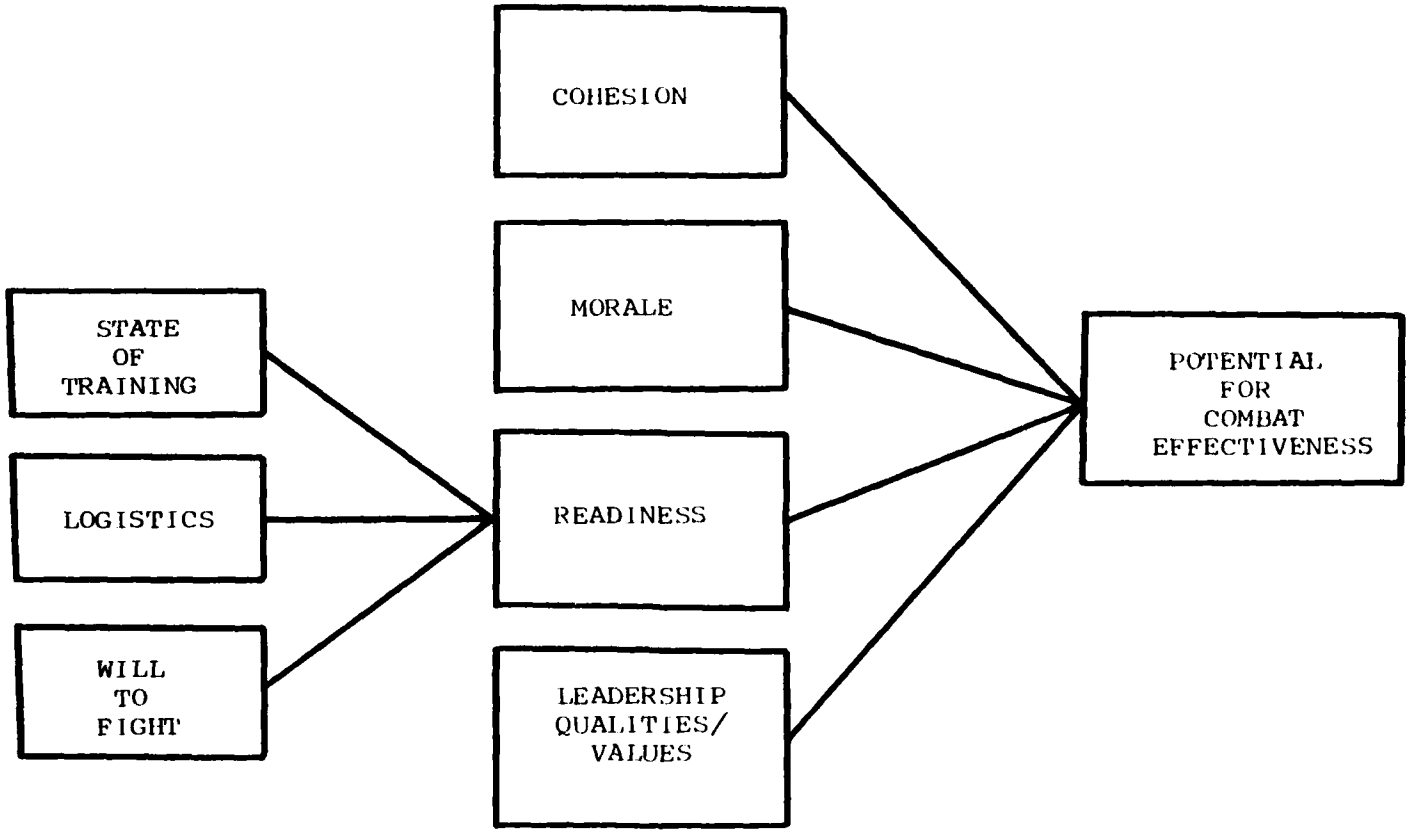

Figure 1. Hypothesized Combat Effectiveness Model

State of Training

The training index was hypothesized to measure three areas of training:

1. Job Related Training: Measures the satisfaction, confidence, and appropriateness of the technical and on-the-job training received to perform one's job.

2. Combat Related Training: Measures the extent that combat drills or exercises enhance the individual's skills and test the unit's combat readiness for a potential threat.

3. Effects of Training: Measures the confidence one has that training has adequately prepared oneself and one's work group to perform their job.

Logistics

Logistics measures the degree that equipment provided is sufficient to complete the job, that equipment is adequately maintained, and that enough equipment is provided to accomplish the assigned mission.

Will to Fight

The concept of will to fight is adapted from Hauser (1980) to measure one's willingness to fight. However, several of the questions chosen for this index were not approved as indicated by asterisks in Appendix D. The following concepts are measured by this index:

1. Submission: Following disapproval of several questions, submission measures one's confidence that he/she

is prepared to enter combat, one's responsibility to his/her organization to accomplish the mission, and one's need to understand why the organization must be combat ready.

2. Fear: Measures one's confidence in leaders, trust among the work group, and worry about being sent into combat.

3. Loyalty: Measures the loyalty one feels towards one's work group.

4. Pride: Measures one's pride in one's job and organization.

Morale

The index of morale follows the concept presented by Richardson (1978) which breaks down morale into three elements, as well as a factor representing job related attitudes and alienation as a detractor of a unit's morale.

1. Individual Psychological Well-Being: Measures one's personal morale and concern for support of others outside one's work group, which, in turn, help foster high morale.

2. Work Group Morale: Measures the level of organizational morale through questions covering the concern for the welfare of people, pride in the organization, and a motivation to perform the organization's mission.

3. Collection of Job Related Attitudes: Measures one's feeling as to the importance of one's job in a war and

the degree to which one is generally satisfied with factors surrounding the job.

4. Alienation: Measures the degree that Air Force policy or procedures isolate one or detract from the formulation of high morale.

Cohesion

The cohesion index encompasses measures of loyalty, conflict, trust, and teamwork present in the work group. Also included are measures of the organization's communications climate and general organizational climate factors from the OAP.

Leadership Qualities/Values

To measure the leadership index, several OAP questions were combined with two questions from the combat effectiveness questionnaire. The index measures the degree one's supervisor performs a variety of management and supervisory functions (i.e., planning, teamwork, setting standards, feedback, etc.).

VALIDATION OF THE ORGANIZATIONAL ASSESSMENT PACKAGE MEASURES

"Validity reflects the degree to which a measure actually measures what it purports to measure" (Nunnally, 1967:76). Perhaps the most powerful method of construct validation is factor analysis (Kerlinger, 1973). Factor

analysis was used in this study to validate the underlying dimensions of the combat effectiveness model. The procedures followed in the factor analysis of the combat effectiveness model will be presented later in this chapter.

The initial validation of the Organizational Assessment Package was accomplished by Hendrix and Halverson (1979) and resulted in seventeen factors being recommended for inclusion into the operational OAP. The most recent validation of the OAP was conducted by LMDC and produced the 24 statistical factors and three non-statistical factors described earlier (LMDC, 1982).

While this study was not primarily concerned with the complete revalidation of the OAP model developed by LMDC, factor analysis of all the OAP variables was conducted to attempt to eliminate any problem with multi-collinearity among OAP factors in the multiple regression analysis performed later in the study.

Factor analysis was accomplished with the SPSS subprogram FACTOR (Nie et al., 1975). The specific method used was principal factoring with iteration (this involves an iterative process to improve the communality estimates). Orthogonal rotation of the factors with the VARIMAX criterion was used to insure independence between the factors. Prior to conducting the factor analysis, the following objectives were established: (1) to account for as many of the OAP variables as possible in the final solution; (2) to identify

the minimum number of factors which contain the most common variance and maintain a clear independence between factors; and (3) to select only those factors with an adequate number of high loading variables to allow easy labeling of each factor. In order to meet these three objectives, several criteria were established. First, a minimum factor loading of .30 was used to allow association of a variable with a factor. Second, each factor in the final solution must have two or three high loading variables to define the factor. Third, the eigenvalues of each factor in the final factor solution had to be equal or greater than one (1.0), which is a convention developed by Kaiser for the identification of a "reliable and meaningful" explanation of common variance (Harman, 1967).

RELIABILITY OF SCALES

Reliability of a measurement is an important issue in any research effort. Reliability reflects the degree that the results of a measurement are free from error. There are several different procedures which could be used to assess the reliability of a measure. The procedure selected for this study was the internal consistency method. The internal consistency method should be used if the goal is to assess the degree to which the items in a measure are homogeneous (Stone, 1978). Specifically, reliability estimates based on coefficient alpha (Cronbach, 1951) were used to test the

internal consistency of the items in each scale (determined by factor analysis). Coefficient alpha sets an upper limit to the measure of reliability. If the coefficient alpha is low, then the items the index measures have little in common or the index is too short (Nunnally, 1967). Computations for evaluating the scales were accomplished by the SPSS subprogram RELIABILITY (Hull and Nie, 1981). The results of the computations will be reported in Chapter 4.

DATA ANALYSIS

This section will describe the methods of data analysis used to answer the three research questions posed earlier in Chapter 1. The methods employed include factor analysis, bivariate correlation, and multiple regression.

Factor Analysis and Research Question 1

Factor analysis was the analytical method used to answer research question 1, which was concerned with identifying the psychosocial dimensions contained in the combat effectiveness model. Factor analysis is one of the most powerful analytical tools available to a researcher (Hair, 1979). One of the most common uses of factor analysis involves searching for and identifying orthogonal dimensions which best account for the common variance among a large set of variables (believed to contain multiple dimensions). The major assumption which makes factor analysis work is that

the variance in the data is comprised of common variance, specific variance, and error variance (Hair, 1979; Harman, 1967; Kerlinger, 1973; and Nie et al., 1975).

Several authors have identified the various uses of factor analysis (Hair, 1979; Harman, 1967; and Kerlinger, 1973). However, Nie et al. (1975) have classified the most common uses of factor analysis into three categories: (1) exploratory uses -- to explore and detect the patterning of variables with the desire to discover new concepts and possibly reduce the size of the original data; (2) confirmatory uses -- to test hypotheses about the structuring of variables within hypothesized dimensions; and (3) uses as a measuring device -- to create indices (scales) for later use as new variables. Both the second and third categories are used in this study. The following presentation will explain how each category was used in analysis of the data to answer research question 1 and enable further analysis to answer research questions 2 and 3.

Prior to conducting the factor analysis of the combat effectiveness model, three general objectives were established for factoring the model. These objectives include: (1) to account for as many of the variables as possible in the final solution, (2) to identify the minimum number of factors which contain the most common variance and maintain a clear independence between factors, and (3) to select only those factors with an adequate number of high loading

variables to permit labeling of each factor. To meet the stated objectives, several criteria were established for treatment of the variables and the number of factors selected for the final solution. First, the criteria for inclusion of variables in the model was established at: (1) the communality estimate must exceed .25 and (2) the factor loading must exceed .30 to insure significance of factors (Hair, 1979). Second, each factor in the final solution should have a minimum of two variables with high loadings (.3 or greater), in order to accommodate the clear labeling of each factor. Third, the eigenvalues for each factor in the final solution must be greater than or equal to one (1.0) to determine the number of factors which best explains the common variance in the model. This criterion was a convention developed by Kaiser for identification of the number of factors that provides a "reliable and meaningful" explanation of the common variance (Harman, 1967).

A review of the data revealed that missing values were present throughout the sample of 5,235 cases. To handle the missing data, listwise deletion was used in all analyses in this study. Listwise deletion involves the omission of the entire case if one of the variables included in the analytical procedure was missing from the case. While this procedure effectively lowered the number of cases used in analysis, the number was still sufficiently large to insure a significant solution. Also, listwise deletion would

avoid the potential problem of producing a "very artificial" factor analysis (Nie et al., 1975).

The factor analysis of the combat effectiveness model was performed by means of the SPSS subprogram FACTOR described in Nie et al. (1975). The specific factoring method used was principal factoring with iterations, which is also called common factor analysis. This method inserts communality estimates in the main diagonal of the correlation matrix and through an iterative process improves these estimates. Common factor analysis is the preferred method when the primary objective is to identify the latent dimensions or constructs represented in the variables and the researcher has little knowledge of the amount of error and specific variance (Hair, 1979). Common factor analysis eliminates the error and specific variance during the analysis of the data (Hair, 1979). In order to insure the independence of the factors in the final factor solution, orthogonal rotation with the SPSS VARIMAX criterion was used in the factor analysis procedure.

In the search for the best factor solution to meet the objectives stated earlier, several iterations of the factor analysis were conducted. During this process, those variables which did not meet the criteria for inclusion in the model were removed one at a time until the final factor solution was reached.

From the final factor solution, scales were identified and labeled based on the highest loading variables

within each factor. Reliability estimates based on coefficient alpha (Cronbach, 1951) were then computed for each scale.

Finally, a value was computed for each scale derived from the factor analyses. This value was computed by adding the variables in each scale to create a scale score for each case in the sample. These additive scale scores were used in later analyses to answer research questions 2 and 3.

Bivariate Correlation Analysis and Research Question 2

Bivariate correlation analysis was one method used to answer research question 2, which was concerned with the existence of any significant relationships between the dimensions of the Organizational Assessment Package and the combat effectiveness model. Bivariate correlation provides a single number which summarizes the relationship between two variables. These correlation coefficients indicate the degree to which variation (or change) in one variable is related to variation (change) in another. The correlation coefficient not only summarizes the relationship between a pair of variables, but also provides an easy means for comparing the strength of the relationship between a pair of variables (Hays, 1981 and Nie et al., 1975).

This study employs Pearson's product-moment correlation coefficient (r) in the analysis of the factors (scales) from the two models under study. Pearson's r serves a dual

role. In addition to its use as an indicator of the goodness of fit of a simple bivariate regression, it is a measure of association indicating the strength of the relationship between two variables. Pearson's r ranges from +1 to -1 with values approaching these extremes demonstrating a very strong relationship between the two variables. The plus or minus sign indicates if the relationship is direct (plus) or indirect (minus). Direct means as X increases, so does Y and indirect means as X increases, Y decreases. Additionally, values of r approaching zero imply little or no relationship between the two variables (McClave, 1979 and Nie et al., 1975). Another property of Pearson's r is that when squared the resulting quantity is interpretable as the amount of common variance shared by the two variables (Hays, 1981; McClave, 1979; and Nie et al., 1975).

The SPSS subprogram PEARSON CORR (Nie et al., 1975) was used to compute Pearson product-moment correlation coefficients between the scales of the combat effectiveness model and (1) the factors contained in LMDC's OAP model and (2) the scales identified in the factor analysis of the OAP. As mentioned earlier, listwise deletion of missing data was used to maintain consistency throughout the study. Additionally, one of the products of PEARSON CORR is a test of the significance of the coefficient calculated. For this study, the significance (p) is the result of a two-tailed test of statistical significance, since there are no

explicit expectations as to direction of the relationships among the dimensions of the two models (Nie et al., 1975). The results of this analysis will be reported later.

Multiple Regression Analysis and Research Questions 2 and 3

Multiple regression analysis was used to provide further information to help answer research question 2 and as the primary method to answer research question 3. Multiple regression analysis is a general statistical technique used to analyze the relationship between several independent variables and a single dependent variable. The most important uses of multiple regression analysis have been classified into three categories: (1) discovering the best linear prediction equation and evaluating its prediction accuracy; (2) controlling for other confounding variables in order to evaluate the contribution of a set of variables; and (3) finding the structural relations and providing explanations for seemingly complex multivariate relationships (Nie et al., 1975). In answering both research question 2 and 3, the second category was used in this study.

The SPSS subprogram REGRESSION (Nie et al., 1975) with forward (stepwise) inclusion of independent variables was used in the regression analyses. Forward inclusion involves the entering of variables into the equation based on the respective contribution of each variable to explain variance in the dependent variable. Also, listwise deletion of missing data was used as described earlier.

Research question 2 addresses the existence of any significant relationships between the dimensions measured in the Organizational Assessment Package and combat effectiveness model. Pearson product-moment correlation coefficients were calculated, but this only provided an indication of the relationship between the pair of factors/scales under consideration. Multiple regression analysis is capable of providing the relationship between multiple independent factors and the dependent factor. In search of an answer for research question 2, the combat effectiveness scale scores were treated as the dependent variable and OAP scales were considered independent variables. Each combat effectiveness scale score was regressed with the OAP scale scores from the factor analysis presented earlier. Where a combat effectiveness scale shared common variables with an OAP scale, an additional regression was performed. This regression excluded those OAP scales with common variables from the stepwise procedure. This procedure allowed for the identification of the total variance in each combat effectiveness factor (scale) explained by the OAP. To analyze the significance of this contribution, an "F" test of the overall equation and each regression coefficient was performed at a significance level (p) of .05.

Research question 3 deals with the significance of the combat effectiveness model factors in predicting the perceived combat readiness of an Air Force unit. The

preferred approach to this question would be to have an objective measure of the combat readiness or combat effectiveness for the organizations under study. However, for the purpose of this study, an objective indicator was not available. However, there was a subjective (perceptual) question in the combat effectiveness model which was used as a dependent variable. Question 51 asked each respondent "to what extent do you feel your organization is combat ready?" This question was selected to measure the combat readiness of the organization. With this variable (Q51) as the dependent variable, two separate regressions were performed. The first regression involved using all the dimensions from the combat effectiveness model. However, one of the scales produced by the factor analysis of the combat effectiveness model, labeled "effects of training," included Question 51. Therefore, before the first regression was performed, Question (or variable) 51 was "removed" from the "effects of training" scale so as not to confound the dependent variable (Question 51) with an independent variable (effects of training). In the second regression, all dimensions from the factor analysis of the combat effectiveness model, except the "effects of training" scale, were used to help evaluate the significance of the remaining dimensions as predictors of an organization's combat readiness. To analyze the significance of the contributions, an "F" test of

the overall equation and each regression coefficient was performed. The results of this analysis will be reported in the next chapter.

CHAPTER 4

RESULTS

The information presented in this chapter represents the findings which resulted from the data analyses described in the preceding chapter. The purpose of these analyses was to provide answers to the three research questions posed in Chapter 1: (1) what are the major psychosocial dimensions that contribute to the combat effectiveness of a military unit as measured by the combat effectiveness model? (2) are any of the dimensions measured by the combat effectiveness model significantly related to the factors in the Organizational Assessment Package? and (3) are the dimensions measured by the combat effectiveness model significant predictors of an organization's combat readiness (potential for combat effectiveness) as perceived by its members? The results of the data analyses will be presented as follows: (1) factor analysis of the Organizational Assessment Package, (2) factor analysis of the combat effectiveness model, (3) data analysis and research question 2, and (4) data analysis and research question 3.

FACTOR ANALYSIS OF THE ORGANIZATIONAL ASSESSMENT PACKAGE

As stated earlier, factor analysis of the Organizational Assessment Package was accomplished to identify independent factors (scales) to be used in regression analysis. The purpose was not to revalidate the systems model currently in use by LMDC. After several iterations, the final factor solution (see Appendix E) resulted in the extraction of thirteen independent scales. The scales were labeled supervision/management, organizational climate, task characteristics, perceived productivity, job desires, task autonomy, job pride/satisfaction, job performance, advancement/recognition, work support, work interferences, work repetition, and desired repetitive easy tasks. Table 4-1 contains these thirteen scales and the factor loadings (from highest to lowest) of the variables (or questions) which were used to label each scale. Each variable or question from the Organizational Assessment Package (minus the demographic questions) loaded at .3 or above. Also, no variables were removed for failing to meet the criteria established in Chapter 3. The thirteen scales (factors) accounted for 63.2 percent of the variance in the variables analyzed from the Organizational Assessment Package (V201-V723).

The "supervision/management" scale was a combination of two LMDC factors (management and supervision and supervisory communications climate) and measured a variety of

TABLE 4-1

OAP SCALES AND FACTOR LOADINGS FROM FACTOR ANALYSIS OF THE ORGANIZATIONAL ASSESSMENT PACKAGE

VARIABLE	LOADING	VARIABLE	LOADING	VARIABLE	LOADING
SUPERVISION/ MANAGEMENT		**ORGANIZATIONAL CLIMATE**		**TASK CHARACTERISTICS**	
V435	.83	V305	.77	V203	.66
V412	.82	V306	.77	V201	.63
V445	.80	V318	.77	V210	.62
V404	.79	V302	.75	V212	.61
V431	.79	V309	.74	V202	.56
V437	.79	V316	.72	V209	.41
V424	.78	V301	.69	V211	.37
V416	.78	V307	.69		
V413	.76	V310	.66	**PERCEIVED PRODUCTIVITY**	
V433	.75	V303	.65		
V411	.75	V317	.64		
V428	.75	V314	.64	V260	.71
V410	.74	V304	.64	V265	.71
V436	.74	V313	.63	V261	.67
V426	.73	V300	.60	V264	.62
V442	.72	V315	.58	V259	.58
V439	.69	V308	.52	V238	.45
V405	.65	V311	.49	V709	.43
V434	.40	V312	.46		
V216	.32				
JOB DESIRES		**JOB PRIDE/ SATISFACTION**		**TASK AUTONOMY**	
V251	.86	V723	.60	V271	.76
V252	.85	V215	.54	V213	.72
V250	.80	V275	.53	V270	.66
V253	.69	V710	.46	V214	.54
V249	.61	V719	.44	V717	.36
		V705	.42	V272	.33
		V718	.41		
WORK INTERFERENCES		**ADVANCEMENT/ RECOGNITION**		**JOB PERFORMANCE GOALS**	
V278	.75	V239	.60	V273	.75
V206	.66	V234	.46	V274	.74
V279	.38	V276	.46	V217	.51
V218	.36	V240	.45	V221	.46
		V241	.42		
DESIRED REPETITIVE EASY TASKS		**WORK SUPPORT**		**WORK REPETITION**	
V255	.63	V207	.74	V226	.66
V258	.60	V277	.70	V227	.58
		V208	.43		

desirable supervisory traits. Loadings were all significant, ranging from .32 to .83.

The "organizational climate" scale was comprised of two LMDC factors (organizational communications climate and general organizational climate) and measured several characteristics of the organization's environment. The loadings were all significant and ranged from .45 to .77.

The "task characteristics" scale was the same as LMDC's task characteristic factor, except for one variable (V272) which loaded on another scale in the final factor solution. This scale measured several aspects of one's job (i.e., skill variety, task identity, task significance, and job feedback). Factor loadings ranged from .37 to .66 and were all considered significant.

The "perceived productivity" scale was also similar to LMDC's work group effectiveness factor with the addition of two variables, V238 and V709. This scale measured several components of a work group's productivity as perceived by members in the group. Loadings ranged from .44 to .71 and were all considered significant.

The "job desires" scale was identical to the job desires factor in LMDC's systems model and measured the desirability of a variety of job related characteristics. Factor loadings ranged from .33 to .76 and were all significant.

The "job pride/satisfaction" scale resulted from the combination of two LMDC factors (pride and job related

satisfaction). The scale, composed of seven variables (V723, V215, V275, V710, V719, V705, and V718), measured the pride one has in his job and the satisfaction one gains with his job. Factor loadings ranged from .41 to .60 and were all considered significant.

The "job performance goals" scale contained the majority of the variables from LMDC's job performance goals factor, except one, V218. The scale measured several characteristics of performance goals. Factor loadings ranged from .46 to .75 and were highly significant.

The "advancement/recognition" scale was identical to LMDC's advancement/recognition factor. It was composed of five variables (V234, V239, V240, V241 and V275) and measured the awareness of advancement and recognition and the degree one was prepared for advancement. Factor loadings ranged from .42 to .60 and were all highly significant.

The "work support" and "work interferences" scales were both the result of two LMDC factors (performance barriers/blockages and work interferences). The factor analysis, of the OAP variables produced the "work support" scale, comprised of three variables (V207, V208 and V277), which measured the adequacy of tools, equipment, supplies, and work space in performing one's job. Factor loadings ranged from .43 to .74 and were all significant. The "work interferences" scale from the factor analysis consisted of three variables (V206, V218 and V278) and measured several items which impede one's job performance. This factor combined a

variable from LMDC's job performance goals factor (V218) with the variables from LMDC's performance barriers/blockages and work interferences factors. Factor loadings ranged from .35 to .75 and were all significant.

The "work repetition" scale (V226 and V227) was identical to LMDC's work repetition factor and measured the extent to which one performs the same tasks or faces similar problems on a regular basis. Factor loadings were .58 and .66 and each was considered highly significant.

The last scale extracted from the OAP variables, "desired repetitive easy tasks", consisted of the same variables (V255 and V258) as LMDC's desired repetitive easy tasks factor and measured one's desire for easy repetitive tasks in a job. Factor loadings of .59 and .63 were considered highly significant.

The computed reliabilities, coefficient alpha, for each of the thirteen scales identified from the factor analysis of the OAP variables are listed in Table 4-2. The reliability coefficients ranged from .68 to .97 and were all satisfactory.

Overall, the factor analysis netted results as expected when all of the variables were analyzed together. The LMDC factors, taken from different sections of their model and which measured similar concepts, collapsed together in the factor analysis. Only one LMDC factor, job related training, was not accounted for among the thirteen factors

TABLE 4-2

RELIABILITY COEFFICIENTS FOR OAP SCALES
FROM FACTOR ANALYSIS

Scale	Coefficient Alpha
1. Supervision/Management	.97
2. Organizational Climate	.96
3. Task Characteristics	.83
4. Perceived Productivity	.87
5. Job Desires	.90
6. Task Autonomy	.82
7. Job Pride/Satisfaction	.89
8. Job Performance Goals	.86
9. Advancement/Recognition	.80
10. Work Support	.76
11. Work Interferences	.67
12. Work Repetition	.71
13. Desired Repetitive Easy Tasks	.68

of this analysis. The two variables which comprised this factor (V711 and V712) loaded on the supervision/management scale and organizational climate scale, respectively. With this one exception, all thirteen scales accounted for all of the variables contained in the Organizational Assessment Package. Figure 2 provides a pictorial view of the relationship between the thirteen scales derived from the factor analysis and the 27 factors in LMDC's systems model, minus the four job enrichment indices which are composed of various combined OAP factors. In Figure 2, the scales which share variables with LMDC factors are linked together. The thirteen scales identified from the factor analysis were used in the regression analysis to aid in answering research question 2.

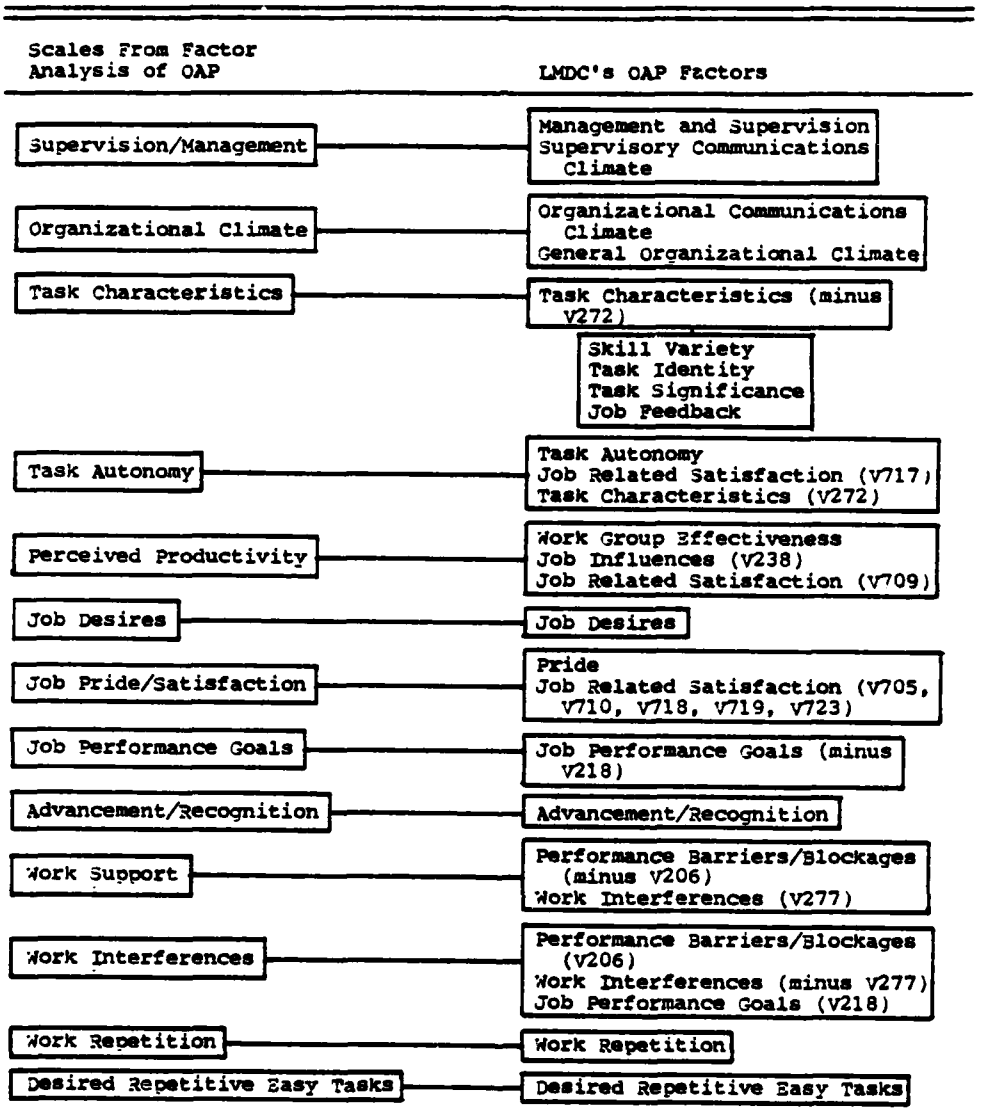

Figure 2

Comparison of OAP Scales Identified from Factor Analysis with LMDC's OAP Factors

FACTOR ANALYSIS OF THE COMBAT EFFECTIVENESS MODEL AND RESEARCH QUESTION 1

In order to answer research question 1, factor analysis was performed on the variables contained in the hypothesized combat effectiveness model (Appendix D). The factor analysis enabled the labeling of those independent dimensions contained in the combat effectiveness model, and provided the information needed to answer research question 1 -- what are the major psychosocial dimensions that contribute to the combat effectiveness of a military unit as measured by the combat effectiveness model?

The factor analysis of the combat effectiveness model led to the extraction of nine independent dimensions (or scales). The cumulative percent of variance explained by the nine scales was 62.8 percent. In reaching the final factor solution, ten variables (Q9, Q17, Q25, Q31, Q36, Q40, Q42, Q43, Q57, and V717) were deleted from the model for failing to meet the criteria for inclusion established in the preceding chapter. The resulting nine factors (or scales) were labeled organizational climate/morale, leadership qualities/values, individual morale, effects of training, cohesion, OJT/technical training, logistics, alienation, and work group conflict. Table 4-3 provides a listing of the variables contained in each scale and their factor loadings from highest to lowest. Appendix F contains the final factor solution. The variables used to label each scale are underlined.

TABLE 4-3

COMBAT EFFECTIVENESS SCALES AND FACTOR LOADINGS FROM FACTOR ANALYSIS OF THE COMBAT EFFECTIVENESS MODEL

VARIABLE	LOADING	VARIABLE	LOADING	VARIABLE	LOADING
ORGANIZATIONAL CLIMATE/MORALE		**LEADERSHIP QUALITIES/VALUES**		**INDIVIDUAL MORALE**	
V306	.77	V412	.82	V215	.74
V305	.75	V404	.81	V275	.73
V302	.74	V416	.78	V723	.70
V309	.73	V435	.78	V719	.54
V318	.73	Q32	.77	V705	.51
V316	.70	V411	.76	V710	.48
V301	.67	V445	.76	Q3	.47
V310	.66	V410	.75	Q38	.46
V307	.65	V433	.73	V718	.42
V303	.64	V428	.70	Q23	.41
V304	.64	V442	.69	Q22	.39
V313	.61	V405	.66		
V314	.60	Q28	.48	**ALIENATION**	
V300	.59				
V317	.58	**LOGISTICS**		Q44	-.76
Q37	.58			Q45	-.75
V315	.52	Q12	.74		
V311	.49	Q11	.68	**WORK GROUP CONFLICT**	
V308	.47	Q13	.66		
Q24	.42	V207	.50	Q56	-.76
Q48	.39	Q14	.49	Q55	-.6
EFFECTS OF TRAINING		**OJT/TECHNICAL TRAINING**		**COHESION**	
				Q30	.61
Q54	.66	Q5	.64	Q27	.59
Q51	.59	Q6	.60	Q33	.59
Q20	.56	Q7	.59	Q29	.47
Q19	.54	Q4	.53	V312	.47
Q50	.53	Q2	.52	V709	.46
Q58	.50	Q53	.40		
Q34	.44	Q1	.38		
Q52	.41				
Q8	.33				

The "organizational climate/morale" scale was comprised of those OAP variables extracted from the organization climate scale and several questions from the combat effectiveness questionnaire: (1) the morale of my organization is high (Q37), (2) the morale of my work group is

high (Q24), and (3) the Air Force is trying to look out for the welfare of its people (Q48). The scale measured a variety of environmental issues which foster organizational morale, as well as perceived levels of organizational morale. Factor loadings ranged from .39 to .77 and were all considered significant.

The "leadership qualities/values" scale factored out as hypothesized and consisted of variables which measure the perceived presence of selected leadership traits. Factor loadings ranged from .48 to .82 and were all considered significant.

The "individual morale" scale was comprised of several qualities which have been considered important in producing high individual morale. These qualities included pride, satisfaction, and a measure of one's spirit or morale. The factor loadings ranged from .39 to .74 and were all considered significant.

The "effects of training" scale was comprised of several questions which measured the extent that both the individual and organization are prepared and ready to meet a potential threat. Additionally, this scale contained question 51, which was used in the regression analysis as a dependent variable to indicate the perceived combat readiness of an organization. Factor loadings ranged from .33 to .66 and were all considered significant.

The "cohesion" scale was comprised of six variables (Q30, Q27, Q33, Q29, V312 and V709) and measured the loyalty,

trust, and teamwork present in an organization. Factor loadings ranged from .46 to .61 and were all considered significant.

The "logistics" scale was comprised of questions which measured the adequacy and availability of equipment and maintenance of equipment needed to perform one's job. Factor loadings ranged from .49 to .74 and were all considered significant.

The "alienation" scale, comprised of two variables (Q44 and Q45), measured the individual's perceptions about the extent to which the Air Force places too much emphasis on military courtesy and immaculate appearance. Factor loadings of .75 and .76 were both considered significant.

The "work group conflict" scale, comprised of two variables (Q55 and Q56) measured the presence of conflict between work groups and the degree that the presence of competition between work groups adversely affects performance. Factor loadings of .69 and .76 were considered highly significant.

The computed reliabilities, coefficient alpha, for the nine scales identified by the factor analysis of the combat effectiveness model, are listed in Table 4-4. The reliability coefficients were all highly satisfactory, ranging from .79 to .96.

The results of the factor analysis delineated the dimensions contained in the combat effectiveness model. In

TABLE 4-4

RELIABILITY COEFFICIENTS FOR COMBAT EFFECTIVENESS SCALES

Scale	Coefficient Alpha
1. Organizational Climate/Morale	.96
2. Leadership Qualities/Values	.96
3. Individual Morale	.91
4. Effects of Training	.82
5. Cohesion	.87
6. OJT/Technical Training	.92
7. Logistics	.87
8. Alienation	.85
9. Work Group Conflict	.79

answering research question 1, the major psychosocial dimensions that are contained in the combat effectiveness model are (1) morale, (2) leadership, and (3) cohesion. Morale was represented by two independent factors, organizational climate/morale and individual morale. In addition to these major psychosocial factors which support those described in other literature, this study's factor analysis identified two objective combat effectiveness measures, training and logistics. The training dimension is composed of two orthogonal (or independent) scales, effects of training and OJT/technical training. In addition to the above factors, all of which have historically been considered as vital to the combat effectiveness of a military unit, this study's factor analysis identified two other dimensions, alienation and work group conflict. These two scales were not

identified in the literature as major contributors to combat effectiveness. All nine factors delineated in this analysis were used in the regression analysis to be described shortly. Finally, one of the major factors which has been identified in the literature and hypothesized for the model, i.e., willingness to fight, was not identified in the final factor solution. The variables comprising willingness to fight factored into other scales because of their similarity. However, the dispersion of these components into the other scales left the combat effectiveness model without one of the major dimensions described in the literature as a key contributor to combat effectiveness.

DATA ANALYSIS AND RESEARCH QUESTION 2

In the search for an answer to research question 2, two data analysis procedures were used. The first, bivariate correlation analysis, involved computing two sets of Pearson product-moment correlation coefficients. The sets of correlation coefficients were computed between (1) LMDC's OAP factors and the combat effectiveness scales and (2) the OAP scales identified from this study's factor analysis and the combat effectiveness scales. The second procedure, multiple regression analysis, involved using the scales from the combat effectiveness model as dependent variables and the scales from the factor analysis of the OAP as independent variables. These two techniques were designed to provide an

answer to research question 2 -- are any of the dimensions measured by the combat effectiveness model significantly related to the factors in the Organizational Assessment Package? The results of the bivariate correlation analysis will be presented first, followed by the results of the regression analysis.

Bivariate Correlation Analysis and Research Question 2

LMDC's OAP Factors with Combat Effectiveness Scales. Table 4-5 contains the Pearson product-moment correlation coefficients computed between LMDC's OAP factors as contained in their systems model and the scales identified as the result of the factor analysis of the combat effectiveness model. The results in Table 4-5 contain several high correlation coefficients which are highly significant ($p<.001$). In the following discussion, only those factors (scales) which have a Pearson product-moment correlation coefficient, r, greater than or equal to .50 will be mentioned.

The organizational climate/morale scale contained several strong correlation coefficients. The LMDC OAP factors with the strongest correlation ($r>.50$) were job related training, job motivation index, management and supervision, supervisory communications climate, organizational communications climate, pride, advancement/recognition, job related satisfaction, and general organizational climate (r ranged from .51 to .97). Two LMDC factors, organizational

TABLE 4-5

PEARSON PRODUCT-MOMENT CORRELATION
COEFFICIENTS FOR LMDC'S OAP FACTORS
AND COMBAT EFFECTIVENESS SCALES

LMDC'S OAP FACTORS	COMBAT EFFECTIVENESS SCALES								
	1	2	3	4	5	6	7	8	9
Job Desires	.14##	.11##	.27##	.15##	.22##	.14##	.14##	-.12##	-.08##
Job Performance Goals	.49##	.42##	.55##	.39##	.46##	.50##	.40##	-.14##	-.11##
Task Characteristics	.40##	.34##	.59##	.40##	.43##	.43##	.32##	-.13##	-.08##
Task Autonomy	.45##	.38##	.55##	.28##	.41##	.40##	.35##	-.17##	-.14##
Work Repetition	-.17##	-.13##	-.19##	-.10##	-.12##	-.11##	-.13##	.14##	.16##
Desired Repetitive Esay Tasks	.09##	.09##	.03	.10##	.03	.08##	.07##	.07*	.10##
Job Related Training	.61##	.55##	.60##	.46##	.51##	.75##	.50##	-.14##	-.13##
Job Influences	.48##	.50##	.51##	.37##	.57##	.48##	.37##	-.17##	-.12##
Skill Variety	.30##	.23##	.49##	.32##	.32##	.30##	.18##	-.12##	-.03
Task Identity	.30##	.25##	.41##	.29##	.34##	.37##	.29##	-.05*	-.07*
Task Significance	.29##	.23##	.44##	.34##	.30##	.28##	.21##	-.14##	-.03
Job Feedback	.36##	.33##	.49##	.30##	.39##	.39##	.32##	-.10##	-.12##
Job Motivation Index	.48##	.40##	.60##	.36##	.47##	.47##	.41##	-.20##	-.17##
OJI Total Score	.52##	.42##	.66##	.43##	.50##	.52##	.50##	-.20##	-.15##
Job Motivation Index-Additive	.51##	.43##	.65##	.39##	.50##	.50##	.44##	-.18##	-.15##
Motivation Potential Score	.46##	.40##	.60##	.35##	.46##	.45##	.37##	-.18##	-.15##
Performance Barriers/ Blockages	.39##	.27##	.33##	.27##	.29##	.37##	.62*	-.19##	-.21##
Management and Supervision	.57##	.97###*	.48##	.34##	.52##	.57##	.38##	-.07##	-.09##
Supervisory Communications Climate	.61##	.94###*	.53##	.37##	.53##	.61##	.40##	-.10##	-.07##
Organizational Communications Climate	.95###*	.59##	.64##	.47##	.56##	.62##	.60##	-.22##	-.23##
Work Interferences	-.01	.01	.08##	.09##	.05	.04	.11##	.06*	.16##
Supervisory Assistance	.46##	.81##	.38##	.28##	.43##	.52##	.31##	.28	-.07##
Pride	.53##	.41##	.84###*	.45##	.51##	.51##	.38##	-.22##	-.11##
Advancement/ Recognition	.63##	.51##	.69##	.46##	.53##	.57##	.44##	-.21##	-.13##
Work Group Effectiveness	.47##	.49##	.45##	.36##	.62##	.56##	.32##	-.07##	-.14##
Job Related Satisfaction	.72##	.55##	.91###*	.52##	.71###*	.67##	.53##	-.22##	-.18##
General Organizational Climate	.97###*	.61##	.74##	.50##	.68###*	.64##	.55##	-.26##	-.24##

* (p<.05)
** (p<.01)
*** (p<.001)
\# (OAP variables common to both)

(1) Organizational Climate/Morale
(2) Leadership Qualities/Values
(3) Individual Morale
(4) Effects of Training
(5) Cohesion
(6) OJT/Technical Training
(7) Logistics
(8) Alienation
(9) Work Group Conflict

communications climate and general organizational climate, shared common variables which accounted for their high correlation coefficient. The other LMDC factors demonstrated strong and significant ($p<.001$) relationships between the organizational climate/morale scale and LMDC's OAP factors.

The leadership qualities/values scale contained several strong correlation coefficients. The LMDC OAP factors with the highest correlation ($r>.50$) were job related training, job influences, management and supervision, supervisory communications climate, organizational communications climate, supervisory assistance, advancement/recognition, job related satisfaction, and general organizational climate (r ranged from .50 to .97). Two LMDC factors, management and supervision and supervisory communications climate, shared common variables which accounted for their high correlation coefficients (.97 and .95, respectively). The other correlation coefficients indicated a strong relationship between the leadership qualities/values scale and LMDC's OAP factors.

The individual morale scale contained several high correlation coefficients. The LMDC OAP factors with the highest correlation ($r>.50$) were job performance goals, task characteristics, task autonomy, job related training, job influences, job motivation index, OJI total score, job motivation index-additive, motivation potential score, supervisory communications climate, organizational communications climate,

advancement/recognition, job related satisfaction, and general organizational climate (r ranged from .51 to .91). Two LMDC factors, pride and job related satisfaction, shared common variables which accounted for their high correlation coefficients (.84 and .91, respectively). The other correlation coefficients indicated a strong relationship between the individual morale scale and LMDC's OAP factors.

The effects of training scale contained two high correlation coefficients. The LMDC factors of job related satisfaction and general organizational climate correlated strongly, with correlation coefficients of .52 and .50, respectively.

The cohesion scale contained several high correlation coefficients. The LMDC OAP factors with the highest correlation coefficients ($r>.50$) were job related training, job influences, OJI total score, job motivation potential score, management and supervision, supervisory communications climate, pride, advancement/recognition, work group effectiveness, job related satisfaction, and general organizational climate (r ranged from .50 to .71). Two LMDC factors, job related satisfaction and general organizational climate, shared common variables (r equaled .71 and .68, respectively). The high correlation coefficients provided evidence of a strong relationship between the cohesion scale and LMDC's OAP factors.

The OJT/technical training scale contained several strong correlation coefficients. The LMDC OAP factors with

the highest correlation coefficients (r>.50) were job performance goals, job related training, OJI total score, job motivation index-additive, management and supervision, supervisory communications climate, organizational communications climate, supervisory assistance, pride, advancement/ recognition, work group effectiveness, job related satisfaction, and general organizational climate (r ranged from .50 to .75). The LMDC factor, job related training, did not share a common variable, but did contain questions almost identical to the ones comprising the OJT/technical training scale, which explains the high correlation (r=.75). This fact is important to mention because this factor was lost in the factor analysis of the OAP and not used in later regression analysis. The other LMDC factors provided evidence of a strong relationship between the OJT/technical training scale and LMDC's OAP factors.

The logistics scale contained several high correlation coefficients. The LMDC factors with the highest correlation (r>.50) were job related training, OJI total score, performance barriers/blockages, organizational communications climate, job related satisfaction, and general organizational climate (r ranged from .50 to .62). The LMDC factor, performance barriers/blockages, shared a common variable which would help explain the high correlation (r=.62). The other LMDC factors indicated a strong relationship between the logistics scale and LMDCs OAP factors.

OAP Scales from Factor Analysis with Combat Effectiveness Scales. Table 4-6 contains the Pearson product-moment correlation coefficient (r) computed between the OAP scales derived from the factor analysis of OAP variables and the scales produced from the factor analysis of the combat effectiveness model. The results in Table 4-6 illustrate several high correlation coefficients with a high degree of significance ($p<.001$). In the following discussion, only those factors (scales) which have a Pearson product-moment correlation coefficient greater than or equal to .50 will be mentioned.

The organizational climate/morale scale had several high correlation coefficients with the OAP scales. The OAP scales with the highest correlations ($r>.50$) were supervision/management, organizational climate, perceived productivity, task autonomy, job pride/satisfaction, and advancement/recognition. The OAP scale, organizational climate, shared several common OAP variables, which explained the high correlation coefficient ($r=.99$). The remaining OAP scales ($r>.50$) all suggested a strong direct relationship between the organizational climate/morale scale and the OAP scales.

The leadership qualities/values scale had several high correlation coefficients with the OAP scales. The OAP scales with the strongest correlations ($r>.50$) were supervision/management, organizational climate, perceived productivity, job pride/satisfaction, and advancement/recognition.

TABLE 4-6

PEARSON PRODUCT-MOMENT CORRELATION COEFFICIENTS
FOR OAP SCALES FROM FACTOR ANALYSIS
AND COMBAT EFFECTIVENESS SCALES

OAP SCALES FROM FACTOR ANALYSIS	COMBAT EFFECTIVENESS SCALES								
	1	2	3	4	5	6	7	8	9
Supervision/ Management	.61***	.98#***	.53***	.37***	.56***	.62***	.41***	-.10***	-.10***
Organizational Climate	.99#***	.63***	.72***	.51***	.65#***	.66***	.60***	-.26***	-.25***
Task Characteristics	.40***	.33***	.59***	.41***	.42***	.42***	.31***	-.15***	-.08**
Perceived Productivity	.55***	.54***	.54***	.41***	.75#***	.63***	.40***	-.09***	-.17***
Job Desires	.15***	.12***	.28***	.16***	.23***	.15***	.15***	-.13***	-.09***
Task Autonomy	.52***	.43***	.61***	.33***	.49***	.46***	.42***	-.19***	-.18***
Job Pride/ Satisfaction	.68***	.52***	.97#***	.53***	.63***	.64***	.49***	-.24***	-.17***
Job Performance Goals	.49***	.44***	.54***	.40***	.46***	.53***	.43***	-.15***	-.14***
Advancement/ Recognition	.63***	.52***	.69***	.47***	.53***	.57***	.44***	-.22***	-.14***
Work Support	.45***	.31***	.40***	.33***	.34***	.43***	.72#***	-.18***	-.20***
Work Interferences	-.21***	-.16***	-.10***	-.06*	-.12***	-.19***	-.26***	.13***	.24***
Work Repetition	-.17***	-.13***	-.19***	-.11***	-.13***	-.12***	-.14***	.14***	.16***
Desired Repetitive Easy Tasks	.08**	.08**	.02	.09***	.02	.07*	.06*	.08**	.11***

* ($p<.05$)
** ($p<.01$)
*** ($p<.001$)
# (OAP variables common to both)

(1) Organizational Climate/Morale
(2) Leadership Qualities/Values
(3) Individual Morale
(4) Effects of Training
(5) Cohesion
(6) OJT/Technical Training
(7) Logistics
(8) Alienation
(9) Work Group Conflict

The OAP scale supervision/management shared several common variables, which accounted for the high correlation coefficient ($r=.98$). The remaining OAP scales ($r>.50$) indicated a strong direct correlation with the leadership qualities/values scale.

The individual morale scale had several strong correlation coefficients. The OAP scales with the highest correlation (r>.50) were supervision/management, organizational climate, task characteristics, perceived productivity, task autonomy, job pride/satisfaction, job performance goals, and advancement/recognition (r ranged from .53 to .97). The OAP scale "job pride/satisfaction" had several common OAP variables, which accounted in part for the extremely high correlation (r=.97). The high correlation coefficients provided strong evidence of a direct relationship between the OAP scales listed (r>.50) and the individual morale scale.

The effects of training scale correlated strongly with two of the OAP scales, organizational climate and job pride/satisfaction. The correlation coefficients of .51 and .53, respectively, indicated a strong direct relationship between these two OAP scales and the effects of training scale.

The cohesion scale had several high correlation coefficients. The OAP scales with the highest correlations (r>.50) were supervision/management, organizational climate, perceived productivity, job pride/satisfaction, and advancement/recognition (r ranging from .53 to .75). The OAP scales, organizational climate and perceived productivity, had OAP variables in common with the cohesion scale, which explained the high correlation coefficient. The high correlation coefficients for the other OAP scales listed indicated a strong direct relationship existed with the cohesion scale.

The OJT/technical training scale contained several high correlations. The OAP scales with the strongest correlation coefficients ($r>.50$) were supervision/management, organizational climate, perceived productivity, job pride/satisfaction, job performance goals, and advancement/recognition (r ranging from .53 to .66). The strength of these correlations indicated a high direct relationship between the six scales and the OJT/technical training scale.

The logistics scale contained two high correlation coefficients ($r>.50$), organizational climate and work support. The work support factor had one OAP variable in common with the logistics scale which explained a portion of the high correlation. The magnitude of the coefficients suggested a strong direct relationship between these two OAP scales and the logistics scale.

The final two scales, alienation and work group conflict, did not contain any strong correlation coefficients. While a strong relationship was not present, the coefficients indicated an indirect relationship with all OAP factors except work interferences, work repetition, and desired repetitive easy tasks. These last three OAP scales were directly related to alienation and work group conflict.

Multiple Regression Analysis and Research Question 2

During interpretation of the regression runs, a few of the independent variables acted as a "suppressor variable"

(Nunnally, 1967). This characteristic can be identified when a variable's regression coefficient has a sign opposite to the zero-order correlation coefficient between the independent and dependent variable. This change of sign is caused by the independent variable that enters the regression having a high correlation with other independent variables in the regression equation and very little correlation with the dependent variable. While the suppressor variable has little correlation with the dependent variable, it supplies important information (Nunnally, 1967). The correlation among the independent variables and the suppressor variable involves variance that is not related to the dependent variable. Consequently, when this component of variance (not related to the dependent variable) is subtracted from the independent variables already in the regression, their predictive power is increased. During the following discussions, those variables acting as suppressor variables will be identified.

Organizational Climate/Morale. Table 4-7 reports the results of the regression analysis of the OAP scales (identified in this study's factor analysis) as predictors of organizational climate/morale. Six OAP scales were found to be significant predictors of organizational climate/morale. The first OAP scale to enter the regression equation, organizational climate ($p<.001$), accounted for 99 percent of the total variance in the organizational climate/morale scale.

TABLE 4-7

STEPWISE REGRESSION OF OAP SCALES FROM FACTOR ANALYSIS
AS PREDICTORS OF ORGANIZATIONAL CLIMATE/MORALE
(N=1466)

Dependent Variable: Organizational Climate/Morale Overall R^2=.98968***

STEP	INDEPENDENT VARIABLE	STANDARDIZED REGRESSION COEFFICIENT	R^2	R^2 CHANGE
1.	Organizational Climate	.97179	.98916	.98916 ***
2.	Job Pride/Satisfaction	.02762	.98948	.00032 ***
3.	Task Characteristics	-.01261#	.98956	.00009 ***
4.	Work Support	.00631	.98961	.00005 *
5.	Work Interferences	-.00631	.98964	.00003 *
6.	Advancement/Recognition	.00826	.98968	.00002 *

Suppressor Variable
* (p<.05)
** (p<.01)
*** (p<.001)

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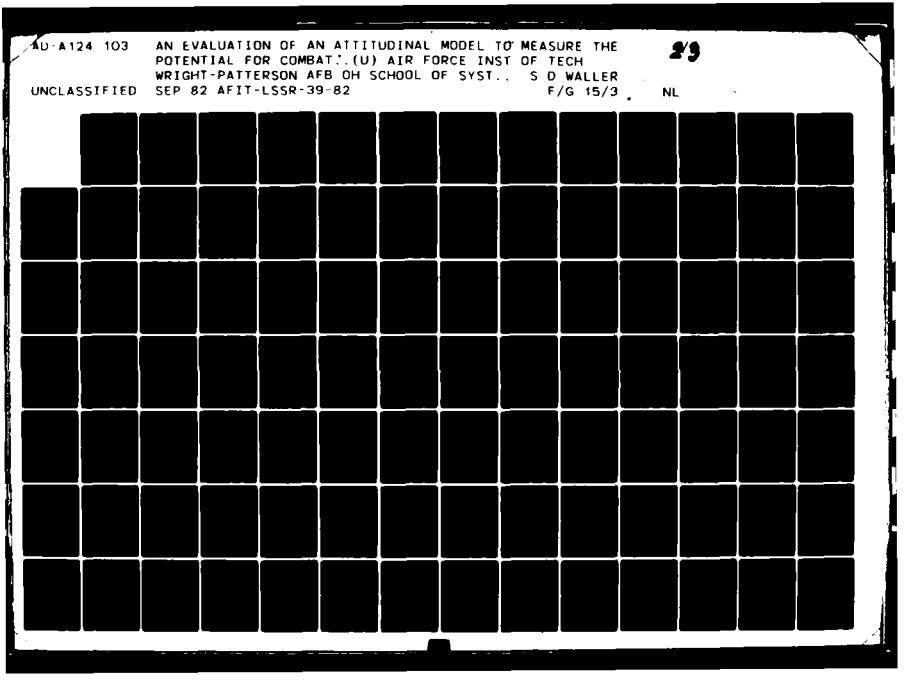

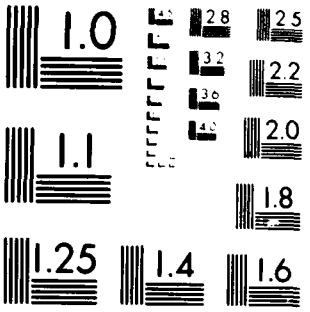

This finding was expected because the organization climate scale shared 18 of the 21 variables comprising the organizational climate/morale scale. Five other OAP scales entered as significant variables, job pride/satisfaction ($p<.001$), task characteristics ($p<.001$), work support ($p<.05$), work interferences ($p<.05$), and advancement/recognition ($p<.05$). However, due to the large amount of variance provided by the organizational climate scale, the last five scales accounted for only a small amount of variance (R^2 change .00051). To evaluate the possible significant contribution of these last five variables, a second regression was performed excluding organizational climate as an independent variable. Table 4-8 reports the results of the second regression. Nine OAP scales, job pride/satisfaction ($p<.001$), supervision/management ($p<.001$), advancement/recognition ($p<.001$), work support ($p<.001$), work interferences ($p<.001$), perceived productivity ($p<.001$), task characteristics ($p<.001$), job desires ($p<.01$), and task autonomy ($p<.01$), entered the regression and accounted for 63 percent of the variance in the organizational climate/morale scale. Two OAP scales, task characteristics and job desires, acted as suppressor variables in the regressions performed. The analysis of these two regressions provided significant evidence that the organizational climate/morale scale was significantly related to measures contained in the OAP. The OAP organizational climate scale accounted for 99 percent of the total variance

TABLE 4-8

STEPWISE REGRESSION OF OAP SCALES FROM FACTOR ANALYSIS
(EXCLUDING ORGANIZATIONAL CLIMATE SCALE)
AS PREDICTORS OF ORGANIZATIONAL
CLIMATE/MORALE (N=1466)

Dependent Variable: Organizational Climate/Morale Overall R^2=.63291***

STEP	INDEPENDENT VARIABLE	STANDARDIZED REGRESSION COEFFICIENT	R^2	R^2 CHANGE
1.	Job Pride/Satisfaction	.33663	.46370	.46370 ***
2.	Supervision/Management	.23404	.56183	.09813 ***
3.	Advancement/Recognition	.20224	.58878	.02695 ***
4.	Work Support	.12397	.60741	.01863 ***
5.	Work Interferences	-.07673	.61664	.00923 ***
6.	Perceived Productivity	.13098	.62447	.00783 ***
7.	Task Characteristics	-.08693#	.62886	.00438 ***
8.	Job Desires	-.05487#	.63101	.00216 **
9.	Task Autonomy	.05928	.63291	.00190 **

Suppressor Variable
* (p<.05)
** (p<.001)
*** (p<.01)

or the nine OAP scales reported in Table 4-8 accounted for 63 percent of the variance in the combat effectiveness scale called organizational climate/morale.

Leadership Qualities/Values. Table 4-9 reports the results of the regression analysis of the OAP scales (from this study's factor analysis) as predictors of leadership qualities/values. Seven OAP scales were found to be significant predictors of leadership qualities/values. The first OAP scale to enter the regression equation, supervision/management ($p<.001$), accounted for 97 percent of the variance in the leadership qualities/values scale. This finding was expected because the supervision/management scale shared 11 of the 13 variables comprising the leadership qualities/values scale. Six other OAP scales entered as significant predictors, organizational climate ($p<.001$), job performance goals ($p<.01$), perceived productivity ($p<.01$), work interferences ($p<.05$), job pride/satisfaction ($p<.001$), and task characteristics ($p<.05$). The OAP scale, job performance goals, entered as a suppressor variable. However, due to the large amount of variance explained by the supervision/management scale, the last six scales accounted for only a small amount of variance (R^2 change .00145). To evaluate the possible significant contribution of these last six variables, a second regression was performed while excluding the OAP scale supervision/management. Table 4-10 reports the results of the second regression. Eight OAP scales,

TABLE 4-9

STEPWISE REGRESSION OF OAP SCALES FROM FACTOR ANALYSIS
AS PREDICTORS OF LEADERSHIP QUALITIES/VALUES
(N=1466)

Dependent Variable: Leadership Qualities/Values Overall R^2=.97167***

STEP	INDEPENDENT VARIABLE	STANDARDIZED REGRESSION COEFFICIENT	R^2	R^2 CHANGE
1.	Supervision/Management	.96024	.97022	.97022 ***
2.	Organizational Climate	.02353	.97098	.00076 ***
3.	Job Performance Goals	-.01756#	.97111	.00013 **
4.	Perceived Productivity	.01687	.97129	.00017 **
5.	Work Interferences	-.01147	.97144	.00015 *
6.	Job Pride/Satisfaction	.02306	.97158	.00014 ***
7.	Task Characteristics	-.01266#	.97167	.00009 *

Suppressor Variable
* (p<.05)
** (p<.01)
*** (p<.001)

TABLE 4-10

STEPWISE REGRESSION OF OAP SCALES FROM FACTOR ANALYSIS
(EXCLUDING SUPERVISION/MANAGEMENT SCALE)
AS PREDICTORS OF LEADERSHIP
QUALITIES/VALUES (N=1466)

Dependent Variable: Leadership Qualities/Values Overall R^2=.47269***

STEP	INDEPENDENT VARIABLE	STANDARDIZED REGRESSION COEFFICIENT	R^2	R^2 CHANGE
1.	Organizational Climate	.35340	.39451	.39451 ***
2.	Perceived Productivity	.25209	.44877	.05426 ***
3.	Advancement/Recognition	.11537	.46113	.01236 ***
4.	Job Performance Goals	.10197	.46541	.00428 ***
5.	Job Desires	-.04274#	.46746	.00205 *
6.	Task Autonomy	.06530	.46960	.00214 *
7.	Task Characteristics	-.05659	.47118	.00159 *
8.	Work Repetition	-.04059	.47269	.00151 *

Suppressor Variable
* (p<.05)
** (p<.01)
*** (p<.001)

organizational climate ($p<.001$), perceived productivity ($p<.001$), advancement/recognition ($p<.001$), job performance goals ($p<.001$), job desires ($p<.05$), task autonomy ($p<.05$), task characteristics ($p<.05$), and work repetition ($p<.05$), entered the regression equation and accounted for 47 percent of the variance in the leadership qualities/values scale. One OAP scale, job desires, entered the second regression equation as a suppressor variable. The overall analysis of these two regressions provided significant evidence that the leadership qualities/values scale was related to measures in the OAP. The OAP scale, supervision/management, accounted for 97 percent of the total variance or the eight OAP scales reported in Table 4-10 accounted for 47 percent of the variance in the combat effectiveness scale called leadership qualities/values.

Individual Morale. Table 4-11 reports the results of the regression analysis of OAP scales (from this study's factor analysis) as predictors of individual morale. Four OAP scales were found to be significant predictors of individual morale. The first OAP scale to enter the regression equation, job pride/satisfaction ($p<.001$), accounted for 94 percent of the variance in the individual morale scale. This result can be explained by the fact that the job pride/satisfaction scale shared 7 of the 11 variables comprising the individual morale scale. Three other OAP scales entered as significant contributors, organizational climate ($p<.001$),

TABLE 4-11

STEPWISE REGRESSION OF OAP SCALES FROM FACTOR ANALYSIS
AS PREDICTORS OF INDIVIDUAL MORALE (N=1466)

Dependent Variable: Individual Morale — Overall R^2=.94835***

STEP	INDEPENDENT VARIABLE	STANDARDIZED REGRESSION COEFFICIENT	R^2	R^2 CHANGE
1.	Job Pride/Satisfaction	.85808	.93811	.93811 ***
2.	Organizational Climate	.11144	.94692	.00881 ***
3.	Advancement/Recognition	.04806	.94819	.00127 ***
4.	Job Desires	.01353	.94835	.00017 *

* (p<.05)
** (p<.01)
*** (p<.001)

advancement/recognition ($p<.001$), and job desires ($p<.05$). However, due to the percentage of variance explained by the job pride/satisfaction scale, the last three scales accounted for only a small amount of variance (R^2 change .01025). To evaluate the possible significant contribution of the last three variables, a second regression was performed while excluding the OAP's job pride/satisfaction scale. Table 4-12 reports the results of the second regression. Eight OAP scales, organizational climate ($p<.001$), task characteristics ($p<.001$), advancement/recognition ($p<.001$), task autonomy ($p<.001$), work repetition ($p<.001$), perceived productivity ($p<.001$), job performance goals ($p<.05$), and job desires ($p<.05$), entered the regression equation as significant contributors. These eight scales accounted for 69 percent of the variance in the individual morale scale. The overall analysis of these two regressions provided evidence that the individual morale scale was significantly related to measures in the OAP. The OAP scale, job pride/satisfaction, accounted for 94 percent of the variance or the eight OAP scales reported in Table 4-12 accounted for 69 percent of the variance in the combat effectiveness scale entitled individual morale.

Effects of Training. Table 4-13 reports the results of the regression analysis of OAP scales as predictors of the effects of training scale. Eight OAP scales entered the regression equation as significant predictors, job pride/

TABLE 4-12

STEPWISE REGRESSION OF OAP SCALES FROM FACTOR ANALYSIS
(EXCLUDING JOB PRIDE/SATISFACTION SCALE)
AS PREDICTORS OF INDIVIDUAL MORALE
(N=1466)

Dependent Variable: Individual Morale — Overall R^2=.68782***

STEP	INDEPENDENT VARIABLE	STANDARDIZED REGRESSION COEFFICIENT	R^2	R^2 CHANGE
1.	Organizational Climate	.36164	.51815	.51815 ***
2.	Task Characteristics	.19497	.62682	.10867 ***
3.	Advancement/Recognition	.22067	.66633	.03951 ***
4.	Task Autonomy	.12512	.67891	.01258 ***
5.	Work Repetition	-.07437	.68252	.00360 ***
6.	Perceived Productivity	.06332	.68562	.00310 ***
7.	Job Performance Goals	.04546	.68532	.00121 *
8.	Job Desires	.03460	.68782	.00100 *

* (p<.05)
** (p<.01)
*** (p<.001)

TABLE 4-13

STEPWISE REGRESSION OF OAP SCALES FROM FACTOR ANALYSIS
AS PREDICTORS OF EFFECTS OF TRAINING (N=1466)

Dependent Variable: Effects of Training — Overall R^2=.26440***

STEP	INDEPENDENT VARIABLE	STANDARDIZED REGRESSION COEFFICIENT	R^2	R^2 CHANGE
1.	Job Pride/Satisfaction	.24651	.28598	.28598 ***
2.	Organizational Climate	.20112	.32700	.04102 ***
3.	Task Characteristics	.13365	.34032	.01332 ***
4.	Perceived Productivity	.08302	.34565	.00533 **
5.	Desired Repetitive Easy Tasks	.06364	.35053	.00487 **
6.	Task Autonomy	-.11377#	.35488	.00436 ***
7.	Advancement/Recognition	.09908	.36001	.00512 **
8.	Work Support	.07634	.36440	.00439 **

Suppressor Variable
* ($p<.05$)
** ($p<.01$)
*** ($p<.001$)

satisfaction ($p<.001$), organizational climate ($p<.001$), task characteristics ($p<.001$), perceived productivity ($p<.01$), desired repetitive easy tasks ($p<.01$), task autonomy ($p<.001$), advancement/recognition ($p<.01$), and work support ($p<.01$), and accounted for 36 percent of the variance in the effects of training scale. The OAP scale, task autonomy, acted as a suppressor variable in the second regression equation. The regressions provided strong evidence that a significant relationship existed between the OAP measures and the effects of training scale. While not as strong as some of the other relationships, the OAP scales did account for 36 percent of the total variance in the effects of training scale.

Cohesion. Table 4-14 reports the results of the regression analysis of the OAP scales (from this study's factor analysis) as predictors of the cohesion scale. Six OAP scales were found to be significant predictors of cohesion. The first two scales to enter the regression equation, perceived productivity ($p<.001$) and organizational climate ($p<.001$), accounted for 65 percent of the variance in the cohesion scale. The contribution could be partially explained by the fact that these two OAP scales shared one variable each with the dependent variable. Four other OAP scales entered as significant contributors, job pride/satisfaction ($p<.001$), task autonomy ($p<.01$), task characteristics ($p<.01$), and supervision/management ($p<.05$), in the regression equation. However, due to the variance contributed by the first two scales entering the regression equation, the

TABLE 4-14

STEPWISE REGRESSION OF OAP SCALES FROM FACTOR ANALYSIS
AS PREDICTORS OF COHESION (N=1466)

Dependent Variable: Cohesion — Overall R^2=.67179***

STEP	INDEPENDENT VARIABLE	STANDARDIZED REGRESSION COEFFICIENT	R^2	R^2 CHANGE
1.	Perceived Productivity	.51443	.56713	.56713 ***
2.	Organizational Climate	.19274	.64578	.07866 ***
3.	Job Pride/Satisfaction	.20248	.66752	.02174 ***
4.	Task Autonomy	.06294	.66928	.00176 **
5.	Task Characteristics	-.05145#	.67084	.00156 **
6.	Supervision/Management	.04118	.67179	.00095 *

Suppressor Variable
* (p<.05)
** (p<.01)
*** (p<.001)

last four scales' contribution was small (R^2 change .02601). To evaluate the possible significant contribution of the last four OAP scales, a second regression was performed while excluding the OAP scales of perceived productivity and organizational climate. Table 4-15 reports the results of the second regression. Six OAP scales, job pride/satisfaction ($p<.001$), supervision/management ($p<.001$), task autonomy ($p<.001$), advancement/recognition ($p<.01$), work support ($p<.01$), and job desires ($p<.05$), entered the regression equation as significant contributors and accounted for 48 percent of the variance in the combat effectiveness scale labeled cohesion. The overall analysis of these two regressions provided evidence that the OAP scales were significantly related to the cohesion measure from the combat effectiveness model. The combined contribution of the two OAP scales, perceived productivity and organizational climate, accounted for 65 percent of the variance or the OAP scales reported in Table 4-15 accounted for 48 percent of the variance in the cohesion scale.

OJT/Technical Training. Table 4-16 contains the results of the regression analysis of the OAP scales (identified in this study's factor analysis) as predictors of the combat effectiveness scale, entitled OJT/technical training. Nine OAP scales, organizational climate ($p<.001$), perceived productivity ($p<.001$), job pride/satisfaction ($p<.001$), supervision/management ($p<.001$), job performance goals

TABLE 4-15

STEPWISE REGRESSION OF OAP SCALES FROM FACTOR ANALYSIS (EXCLUDING ORGANIZATIONAL CLIMATE AND PERCEIVED PRODUCTIVITY SCALES) AS PREDICTORS OF COHESION (N=1466)

Dependent Variable: Cohesion — Overall R^2=.48229***

STEP	INDEPENDENT VARIABLE	STANDARDIZED REGRESSION COEFFICIENT	R^2	R^2 CHANGE
1.	Job Pride/Satisfaction	.36114	.39571	.39571 ***
2.	Supervision/Management	.26810	.46526	.06955 ***
3.	Task Autonomy	.08297	.47407	.00880 ***
4.	Advancement/Recognition	.07229	.47780	.00373 **
5.	Work Support	.05648	.48047	.00267 **
6.	Job Desires	.04511	.48229	.00182 *

* (p<.05)
** (p<.01)
*** (p<.001)

TABLE 4-16

STEPWISE REGRESSION OF OAP SCALES FROM FACTOR ANALYSIS
AS PREDICTORS OF OJT/TECHNICAL TRAINING (N=1466)

Dependent Variable: OJT/Technical Training — Overall R^2=.61932***

STEP	INDEPENDENT VARIABLE	STANDARDIZED REGRESSION COEFFICIENT	R^2	R^2 CHANGE
1.	Organizational Climate	.14159	.43165	.43165 ***
2.	Perceived Productivity	.25479	.53263	.10098 ***
3.	Job Pride/Satisfaction	.19949	.56838	.03575 ***
4.	Supervision/Management	.19995	.59688	.02850 ***
5.	Job Performance Goals	.09882	.60710	.01022 ***
6.	Work Support	.07588	.61212	.00502 ***
7.	Job Desires	-.05865#	.61557	.00344 ***
8.	Work Interferences	-.05729	.61826	.00269 ***
9.	Advancement/Recognition	.04921	.61932	.00106 *

\# Suppressor Variable
* (p<.05)
** (p<.01)
*** (p<.001)

($p<.001$), work support ($p<.001$), job desires ($p<.001$), work interferences ($p<.001$), and advancement/recognition ($p<.05$), were found to be significant predictors of the OJT/technical training scale. The nine OAP scales accounted for 62 percent of the variance in the dependent variable. The OAP scale, job desires, entered as a suppressor variable in the predictive equation. Overall, the regression results provided strong support for the existence of a significant relationship between the measures of the OAP and the OJT/technical training measure from the combat effectiveness model.

Logistics. Table 4-17 reports the results of the regression analysis performed with all the OAP scales (from this study's factor analysis of the OAP) as predictors of the logistics scale from the combat effectiveness model. Four OAP scales entered the regression equation and were all highly significant ($p<.001$). The four OAP scales accounted for 63 percent of the total variance in the dependent variable. The first OAP scale to enter the regression equation, work support, shared one question with the logistics scale. This common variable could be one reason for the high percentage of variance ($R^2=.53$) accounted for by the work support scale. The three remaining OAP scales added another 10 percent to the predictive capability of the equation. Because work support and logistics shared a common variable, a second regression was performed while excluding work support from the OAP scales. The results of this regression are

TABLE 4-17

STEPWISE REGRESSION OF OAP SCALES FROM FACTOR ANALYSIS AS PREDICTORS OF LOGISTICS (N=1466)

Dependent Variable: Logistics

Overall R^2=.63199***

STEP	INDEPENDENT VARIABLE	STANDARDIZED REGRESSION COEFFICIENT	R^2	R^2 CHANGE
1.	Work Support	.55263	.52676	.52676 ***
2.	Organizational Climate	.28009	.62132	.09455 ***
3.	Work Interferences	-.09256	.62863	.00732 ***
4.	Job Pride/Satisfaction	.07909	.03199	.00336 ***

* (p<.05)
** (p<.01)
*** (p<.001)

reported in Table 4-18. Five OAP scales entered the predictive equation, organizational climate ($p<.001$), job performance goals ($p<.001$), work interference ($p<.001$), task autonomy ($p<.01$), and job pride/satisfaction ($p<.01$), and accounted for 41 percent of the variance in the dependent variable. The overall results from these two regressions indicated that significant relationships were present between the OAP measures and the combat effectiveness scale labeled logistics. The total amount of variance accounted for by the first and second regression was 63 and 41 percent, respectively.

Alienation. Table 4-19 reports the results of the regression analysis of OAP scales as predictors of the combat effectiveness scale, alienation. Ten OAP scales entered the regression equation as significant predictors of the dependent variable: organizational climate ($p<.001$), desired repetitive easy tasks ($p<.05$), job pride/satisfaction ($p<.01$), supervision/management ($p<.05$), work interferences ($p<.001$), perceived productivity ($p<.05$), advancement/recognition ($p<.01$), work support ($p<.05$), job repetition ($p<.05$), and job desires ($p<.05$). Out of these ten OAP scales, two scales, supervision/management and perceived productivity, entered the regression equation as suppressor variables. The overall regression accounted for 12 percent of the total variance in the alienation scale. The findings from this regression identified several significant relationships between the combat effectiveness scale, alienation, and the OAP scales, but the predictive strength of the OAP scales was weak ($R^2=.12$).

TABLE 4-18

STEPWISE REGRESSION OF OAP SCALES FROM FACTOR ANALYSIS
(EXCLUDING WORK SUPPORT SCALE)
AS PREDICTORS OF LOGISTICS
(N=1466)

Dependent Variable: Logistics — Overall R^2=.41138***

STEP	INDEPENDENT VARIABLE	STANDARDIZED REGRESSION COEFFICIENT	R^2	R^2 CHANGE
1.	Organizational Climate	.40763	.35824	.25824 ***
2.	Job Performance Goals	.12224	.38283	.02459 ***
3.	Work Interferences	-.14141	.40066	.01784 ***
4.	Task Autonomy	.07807	.40784	.04717 **
5.	Job Pride/Satisfaction	.09027	.41138	.00354 **

* (p<.05)
** (p<.01)
*** (p<.001)

TABLE 4-19

STEPWISE REGRESSION OF OAP SCALES FROM FACTOR ANALYSIS
AS PREDICTORS OF ALIENATION (N=1466)

Dependent Variable: Alienation — Overall R^2=.11932***

STEP	INDEPENDENT VARIABLE	STANDARDIZED REGRESSION COEFFICIENT	R^2	R^2 CHANGE
1.	Organizational Climate	-.19803	.06722	.06722 ***
2.	Desired Repetitive Easy Tasks	.06155	.07646	.00924 *
3.	Job Pride/Satisfaction	-.10052	.08485	.00839 **
4.	Supervision/Management	.10711#	.09279	.00794 *
5.	Work Interferences	.08792	.10138	.00859 ***
6.	Perceived Productivity	-.08629#	.10571	.00433 *
7.	Advancement/Recognition	.10005	.11050	.00479 **
8.	Work Support	-.05956	.11341	.00291 *
9.	Job Repetition	.06501	.11625	.00284 *
10.	Job Desires	-.06303	.11932	.00307 *

Suppressor Variable
* (p<.05)
** (p<.01)
*** (p<.001)

Work Group Conflict. Table 4-20 reports the results of the stepwise regression of the OAP factors (identified in this study's factor analysis) as predictor variables of the work group conflict scale. Seven OAP scales entered the regression equation as significant predictors, organizational climate ($p<.001$), work interferences ($p<.001$), desired repetitive easy tasks ($p<.001$), work repetition ($p<.001$), work support ($p<.01$), supervision/management ($p<.001$), and perceived productivity ($p<.05$). Also, the supervision/management scale acted as a suppressor variable in the regression equation. While all of these OAP scales which entered the equation were significant at the .05 level or better, they only accounted for 14 percent of the total variance in the work group conflict scale. This result differed from prior regressions and provided evidence that while there are some significant relationships, the similarity between the work group conflict scale and the measures in the OAP are limited ($R^2=.14$).

Summary of Results and Answer to Research Question 2

As discussed earlier, the purpose of the bivariate correlation analysis and multiple regression analysis was to provide an answer to research question 2. The analysis procedures used provided many significant and strong relationships between the scales of the combat effectiveness model and the scales (and factors) contained in the Organizational

TABLE 4-20

STEPWISE REGRESSION OF OAP SCALES FROM FACTOR ANALYSIS AS PREDICTORS OF WORK GROUP CONFLICT (N=1466)

Dependent Variable: Work Group Conflict — Overall R^2=.13903***

STEP	INDEPENDENT VARIABLE	STANDARDIZED REGRESSION COEFFICIENT	R^2	R^2 CHANGE
1.	Organizational Climate	-.21415	.06594	.06594 ***
2.	Work Interferences	.17777	.10253	.03660 ***
3.	Desired Repetitive Easy Tasks	.10421	.11757	.01503 ***
4.	Work Repetition	.08770	.12354	.00597 ***
5.	Work Support	-.08365	.12977	.00623 **
6.	Supervision/Management	.12329#	.13630	.00653 ***
7.	Perceived Productivity	-.06649	.13903	.00273 *

Suppressor Variable
* (p<.05)
** (p<.01)
*** (p<.001)

Assessment Package. The combat effectiveness scales of organizational climate/morale, leadership qualities/values, individual morale, cohesion, and logistics that share common variables (questions) with OAP scales showed significant and strong relationships between the two models (overall R^2=.99, .97, .95, .67, .63, respectively). Additionally, the exclusion of the OAP scales with common variables (questions) netted significant and strong relationships (overall R^2=.63, .47, .69, .48, .41, respectively). Two combat effectiveness scales, effects of training and OJT/technical training, had significant and strong relationships (overall R^2=.36 and .62, respectively) with OAP scales. Finally, the last two combat effectiveness scales, alienation and work group conflict, demonstrated the weakest relationship with the OAP scales. This finding was supported by the low Pearson product-moment correlation coefficients (highest r=.28, p<.001) and the multiple regression results (highest R^2=.14). While these two combat effectiveness scales have statistically significant relationships with the OAP scales, the amount of the relationship (shared variance) is very weak. Thus, based on the analysis of the findings, the answer to research question 2 is: There are significant and strong relationships between the combat effectiveness scales of organizational climate/morale, leadership qualities/values, individual morale, effects of training, cohesion, OJT/technical training, and logistics and the Organizational Assessment Package measures; and a significant but rather weak relationship

exists between the combat effectiveness scales of alienation and work group conflict and the Organizational Assessment Package measures.

DATA ANALYSIS AND RESEARCH QUESTION 3

Multiple regression analysis was the statistical method chosen to answer research question 3 -- are the dimensions measured by the combat effectiveness model significant predictors of an organization's combat readiness (potential for combat effectiveness) as perceived by its members? While an objective measure would have been preferred as the measure (dependent variable) of combat readiness in the organization, one was not available for this study. However, one of the questions contained in the effects of training scale was selected for use as a subjective measure of an organization's combat readiness for the purpose of this study. This question (Q51) asks "to what extent do you feel your organization is combat ready?"

The first regression performed involved the use of all the combat effectiveness scales as independent variables in the stepwise procedure. However, to prevent the confounding of the dependent variable (question 51) with the effects of training scale, the variable (Q51) was removed from the effects of training scale's additive score. The results of the stepwise regression are reported in Table 4-21. Five combat effectiveness scales entered the regression equation

TABLE 4-21

STEPWISE REGRESSION OF COMBAT EFFECTIVENESS SCALES
AS PREDICTORS OF PERCEIVED COMBAT READINESS
(N=2166)

Dependent Variable: Q51 — Overall R^2=.37329***

STEP	INDEPENDENT VARIABLE	STANDARDIZED REGRESSION COEFFICIENT	R^2	R^2 CHANGE
1.	Effects of Training	.52463	.34985	.34985 ***
2.	Organizational Climate/Morale	.19072	.36518	.01533 ***
3.	Individual Morale	-.10829#	.36823	.00305 ***
4.	OJT/Technical Training	.10449	.37119	.00296 ***
5.	Leadership Qualities/Values	-.06371#	.37329	.00210 **

Suppressor Variable
* ($p<.05$)
** ($p<.01$)
*** ($p<.001$)

as significant predictors of the dependent variable: effects of training ($p<.001$), organizational climate/morale ($p<.001$), individual morale ($p<.001$), OJT/technical training ($p<.001$), and leadership qualities/values ($p<.01$). These five scales accounted for 37 percent of the variance in the dependent variable. Also, the scales of individual morale and leadership qualities/values entered the equation as suppressor variables. These two suppressor variables increased the predictive power of the effects of training and organizational climate/morale scales. The analysis of this regression provides evidence that the measures of training (effects of training and OJT/technical training), the morale measures (organization climate/morale and individual morale), and leadership measures (leadership qualities/values) are all significant predictors of the perceived combat readiness of an organization.

The results of the second regression, which excluded the effects of training scale from the stepwise regression, are reported in Table 4-22. In this regression, six combat effectiveness scales [organizational climate/morale ($p<.001$), OJT/technical training ($p<.001$), leadership qualities/values ($p<.001$), work group conflict ($p<.01$), cohesion ($p<.05$), and logistics ($p<.05$)]entered the regression equation as significant predictors of the dependent variable. The combination of these six variables explained 20 percent of the variance in the perceived combat readiness of the organizations

TABLE 4-22

STEPWISE REGRESSION OF COMBAT EFFECTIVENESS SCALES (WITHOUT EFFECTS OF TRAINING SCALE) AS PREDICTORS OF PERCEIVED COMBAT READINESS (N=2116)

Dependent Variable: Q51

Overall R^2=.19711***

STEP	INDEPENDENT VARIABLE	STANDARDIZED REGRESSION COEFFICIENT	R^2	R^2 CHANGE
1.	Organizational Climate/Morale	.25055	.15758	.15758 ***
2.	OJT/Technical Training	.20466	.18410	.02652 ***
3.	Leadership Qualities/Values	-.10536#	.18842	.00432 ***
4.	Work Group Conflict	.06813#	.19174	.00332 **
5.	Cohesion	.07724	.19443	.00269 *
6.	Logistics	.06918	.19711	.00269 *

Suppressor Variable
* (p<.05)
** (p<.01)
*** (p<.001)

surveyed in this study. Also, the combat effectiveness scales of leadership qualities/values and work group conflict acted as suppressor variables.

Although the amount of variance accounted for by the independent variables (overall R^2 of .37 and .20) is not extremely high, the regression analysis provided evidence that all the combat effectiveness scales (except alienation) contribute significantly to the prediction of the combat readiness of the units surveyed in this study. Thus, the answer to research question 3, based on the regression analysis results, supports the concept that the measures of morale, leadership, cohesion, training, logistics, and conflict, as measured by the combat effectiveness model, are significant predictors of the combat readiness of the Air Force units sampled by this study. This conclusion lends support to the ideas and findings discovered in the literature review presented in Chapter 2. Furthermore, while each component was significant, the amount of total variance explained indicates that other factors, not measured by the combat effectiveness model, would increase the prediction of combat readiness.

SUMMARY

This chapter has presented the results of the statistical techniques used to obtain answers for the three research questions this study sought to answer. The

statistical procedures involved factor analysis, bivariate correlation analysis, and multiple regression analysis.

The factor analysis of the Organizational Assessment Package produced thirteen scales from all the attitudinal variables of the OAP questionnaire. Also, reliability estimates were reported for each scale and all were found to be strong.

The factor analysis of the combat effectiveness model was used to answer research question 1. The results produced nine independent dimensions (scales). The nine scales measured various psychosocial dimensions as well as combat effectiveness indicators (e.g., training and logistics). The scales identified from both factor analyses were used to find answers to research questions 2 and 3.

Bivariate correlation analysis and multiple regression analysis were used to answer research question 2. The results of the analyses produced strong evidence of a strong and significant relationship between the measures of the combat effectiveness model and the Organizational Assessment Package.

Multiple regression analysis was used to answer research question 3. The results provided strong evidence of the significance of the combat effectiveness scales as predictors of perceived combat readiness, except for the alienation scale.

CHAPTER 5

DISCUSSION AND RECOMMENDATIONS

This study was generated from a concern that the current measures used to determine the combat readiness or potential for combat effectiveness relied too heavily on objective measures and neglected the subjective dimensions which contribute to the combat effectiveness of military units.

First, this study focused on the identification of the major psychosocial or subjective dimensions which contribute to the combat effectiveness of a military unit. The search for these dimensions was conducted through a literature review of previous research efforts and historical accounts of combat situations. The literature identified four psychosocial dimensions which are believed to be important elements in combat effective units. The dimensions are morale, leadership, cohesion, and willingness to fight.

In an effort to evaluate the influence of these four dimensions, the Leadership and Management Development Center developed the combat effectiveness model which included the major subjective, psychosocial dimensions (morale, leadership, cohesion, and willingness to fight) with perceptual measures of other critically important dimensions (training and logistics). These dimensions were the basis for LMDC's

attitudinal survey, designed to assess combat effectiveness. This study utilized the data collected by LMDC to validate the dimensions contained in the combat effectiveness model and compared them with the measures contained in the Organizational Assessment Package.

COMBAT EFFECTIVENESS MODEL

Analysis of the combat effectiveness model identified nine independent dimensions. These dimensions measured the areas of morale, leadership, cohesion, training, logistics, alienation, and conflict. Missing from the model was a dimension to measure the willingness to fight. While the combat effectiveness questionnaire did contain several questions which would have addressed the issue of willingness to fight (questions 59 through 65), the sensitive nature of the possible responses led to the disapproval of these questions for inclusion in the operational questionnaire. While the answers to such questions would be controversial, it seems that the information gained by the knowledge of the willingness of individuals to engage in combat, at whatever level, could provide a great deal of insight to those who are required to assess the combat readiness of our military. Thus, it would seem that a measure of the willingness to fight should be incorporated into the combat effectiveness model.

RELATIONSHIP BETWEEN THE OAP AND COMBAT EFFECTIVENESS MODEL

The analysis of the two models (Organizational Assessment Package and combat effectiveness model) was undertaken partly to identify the relationships or similarities between the two models. The results of the analyses produced evidence of several very strong and significant relationships between the two models. While the sharing of common questions in some scales accounted for a few of the high correlations, other relationships are not as easily explained. Perhaps future research could be conducted to attempt to explain the causes and repercussions of the many significant and strong correlations between the two models.

PREDICTIVE ABILITY OF COMBAT EFFECTIVENESS MODEL SCALES

The multiple regression analysis provided evidence that all of the combat effectiveness scales, except alienation, were significant predictors of an individual's perception of his organization's combat readiness. However, the amount of variance explained by the two regressions (R^2=.34 and .20) was somewhat disappointing. The addition of a willingness to fight dimension could possibly increase the predictive ability of the model. While the overall predictive ability of the model was disappointing, continued research should be conducted before a final conclusion is reached. The next step in evaluating the combat effectiveness model

should be evaluating the dimensions contained in the model against an objective measure(s) of the combat readiness or combat effectiveness of units surveyed. One possibility for future research with the model would be to administer the surveys in conjunction with exercises or maneuvers which simulate a combat situation. This approach could help provide an objective measure and test the significance of the model under combat conditions.

Another avenue for possible research involves separating the respondents surveyed by the type of duty performed. The value of the dimensions contained in the model could be completely different in a unit which is strictly involved in a support role, far away from the fighting, and a unit which would be directly involved in a conflict. This could be accomplished by grouping respondents based on their possible involvement in war or by the duty or job position they occupy.

The possibilities for future research, focusing on measuring combat readiness of military units, are numerous. The combat effectiveness model has attempted to fill a recognized deficiency in the measurement of combat readiness, i.e., the lack of attention to critically important subjective dimensions. Perhaps, through future research in the area of measuring the potential for combat effectiveness, the right combination of subjective and objective dimensions can be identified to insure a comprehensive and more accurate measurement of combat readiness. This research effort will hopefully add some knowledge to this desired outcome.

APPENDIX A

ORGANIZATIONAL ASSESSMENT PACKAGE QUESTIONNAIRE

PRIVACY ACT STATEMENT

In accordance with paragraph 30, AFR 12-35, The Air Force Privacy Act Program, the following information about this survey is provided:

a. Authority: 10 U.S.C., 8012, Secretary of the Air Force: Powers and Duties, Delegation by Compensation E. O. 9397, 22 Nov 43, Numbering System for Federal Accounts Relating to Individual Persons.

b. Principal Purpose: The survey is being conducted to assess your organization from a leadership and management perspective.

c. Routine Uses: Information provided by respondents will be treated confidentially. The averaged data will be used for organizational strength and weakness identification and Air Force wide research and development purposes.

d. Participation: Response to this survey is voluntary. Your cooperation in this effort is appreciated.

[PLEASE DO NOT TEAR, MARK ON, OR OTHERWISE DAMAGE THIS BOOKLET]

EXPIRATION DATE: 31 Oct 1981

SCN 81-14

GENERAL INFORMATION

The leaders of your organization are genuinely interested in improving the overall conditions within their areas of responsibility. Providing a more satisfying Air Force way of life and increasing organizational effectiveness are also goals. One method of reaching these goals is by continual refinement of the management processes of the Air Force. Areas of concern include job related issues such as leadership and management; training and utilization; motivation of and concern for people; and the communication process.

This survey is intended to provide a means of identifying areas within your organization needing the greatest emphasis in the immediate future. You will be asked questions about your job, work group, supervisor, and organization. For the results to be useful, it is important that you respond to each statement thoughtfully, honestly, and as frankly as possible. Remember, this is not a test, there are no right or wrong responses.

Your completed response sheet will be processed by automated equipment, and be summarized in statistical form. Your individual response will remain confidential, as it will be combined with the responses of many other persons, and used for organizational feedback and possibly Air Force wide studies.

KEY WORDS

The following should be considered as key words throughout the survey:

-- Supervisor: The person to whom you report directly.

-- Work Group: All persons who report to the same supervisor that you do.

-- Organization: Your squadron. However, if you work in staff/support agencies, the division or directorate would be your organization.

INSTRUCTIONS

1. All statements may be answered by filling in the appropriate spaces on the response sheet provided. If you do not find a response that fits your case exactly, use the one that is the closest to the way you feel.

2. Be sure that you have completed Section 1 of the response sheet, as instructed by the survey administrator, before beginning Section 2.

3. Please use the pencil provided, and observe the following:

--Make heavy black marks that fill the spaces.

--Erase cleanly any responses you wish to change.

--Make no stray markings of any kind on the response sheet.

--Do not staple, fold or tear the response sheet.

--Do not make any markings on the survey booklet.

4. The response sheet has a 0-7 scale. The survey statements normally require a 1-7 response. Use the zero (0) response only if the statement truly does not apply to your situation. Statements are responded to by marking the appropriate space on the response sheet as in the following example:

Using the scale below, evaluate the sample statement.

1 = Strongly disagree
2 = Moderately disagree
3 = Slightly disagree
4 = Neither agree nor disagree
5 = Slightly agree
6 = Moderately agree
7 = Strongly agree

Sample Statement. The information your work group receives from other work groups is helpful.

If you moderately agree with the sample statement, you would blacken the oval (6) on the response sheet.

	NA						
Sample Response:	(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)

5. When you have completed the survey, please turn in the survey materials as instructed in the introduction.

BACKGROUND INFORMATION

This section of the survey concerns your background. The information requested is to insure that the groups you belong to are accurately represented and not to identify you as an individual. Please use the separate response sheet and darken the oval which corresponds to your response to each question.

1. Total years in the Air Force:

    1. Less than 1 year.
    2. More than 1 year, less than 2 years.
    3. More than 2 years, less than 3 years.
    4. More than 3 years, less than 4 years.
    5. More than 4 years, less than 8 years.
    6. More than 8 years, less than 12 years.
    7. More than 12 years.

2. Total months in present career field:

    1. Less than 1 month.
    2. More than 1 month, less than 6 months.
    3. More than 6 months, less than 12 months.
    4. More than 12 months, less than 18 months.
    5. More than 18 months, less than 24 months.
    6. More than 24 months, less than 36 months.
    7. More than 36 months.

3. Total months at this station:

    1. Less than 1 month.
    2. More than 1 month, less than 6 months.
    3. More than 6 months, less than 12 months.
    4. More than 12 months, less than 18 months.
    5. More than 18 months, less than 24 months.
    6. More than 24 months, less than 36 months.
    7. More than 36 months.

4. Total months in present position:

    1. Less than 1 month.
    2. More than 1 month, less than 6 months.
    3. More than 6 months, less than 12 months.
    4. More than 12 months, less than 18 months.
    5. More than 18 months, less than 24 months.
    6. More than 24 months, less than 36 months.
    7. More than 36 months.

5. Your Ethnic Group is:

1. American Indian or Alaskan Native
2. Asian or Pacific Islander
3. Black, not of Hispanic Origin
4. Hispanic
5. White, not of Hispanic Origin
6. Other

6. Your highest education level obtained is:

1. Non-high school graduate
2. High school graduate or GED
3. Less than two years college
4. Two years or more college
5. Bachelors Degree
6. Masters Degree
7. Doctoral Degree

7. Highest level of professional military education (residence or correspondence):

0. None or not applicable
1. NCO Orientation Course or USAF Supervisor Course (NCO Phase 1 or 2)
2. NCO Leadership School (NCO Phase 3)
3. NCO Academy (NCO Phase 4)
4. Senior NCO Academy (NCO Phase 5)
5. Squadron Officer School
6. Intermediate Service School (i.e., ACSC, AFSC)
7. Senior Service School (i.e., AWC, ICAF, NWC)

8. How many people do you directly supervise?

1. None
2. 1
3. 2
4. 3
5. 4 to 5
6. 6 to 8
7. 9 or more

9. For how many people do you write performance reports?

1. None
2. 1
3. 2
4. 3
5. 4 to 5
6. 6 to 8
7. 9 or more

10. Does your supervisor actually write your performance reports?

1. yes
2. no
3. not sure

11. Which of the following "best" describes your marital status?

0. Not Married
1. Married: Spouse is a civilian employed outside home.
2. Married: Spouse is a civilian employed outside home-geographically separated.
3. Married: Spouse not employed outside home.
4. Married: Spouse not employed outside home-geographically separated.
5. Married: Spouse is a military member.
6. Married: Spouse is a military member-geographically separated.
7. Single Parent.

12. What is your usual work schedule?

1. Day shift, normally stable hours.
2. Swing shift (about 1600-2400)
3. Mid shift (about 2400-0800)
4. Rotating shift schedule
5. Day or shift work with irregular/unstable hours.
6. Frequent TDY/travel or frequently on-call to report to work.
7. Crew schedule.

13. How often does your supervisor hold group meetings?

1. Never
2. Occasionally
3. Monthly
4. Weekly
5. Daily
6. Continuously

14. How often are group meetings used to solve problems and establish goals?

1. Never
2. Occasionally
3. About half the time
4. All of the time

15. What is your aeronautical rating and current status?

1. Nonrated, not on aircrew
2. Nonrated, now on aircrew
3. Rated, in crew/operations job
4. Rated, in support job

16. Which of the following best describes your career or employment intentions?

1. Planning to retire in the next 12 months
2. Will continue in/with the Air Force as a career
3. Will most likely continue in/with the Air Force as a career
4. May continue in/with the Air Force
5. Will most likely not make the Air Force a career
6. Will separate/terminate from the Air Force as soon as possible

JOB INVENTORY

Below are items which relate to your job. *Read each statement carefully and* then decide to what extent the statement is true of your job. Indicate the extent to which the statement is true for your job by choosing the phrase *which best represents your job.*

1 = Not at all
2 = To a very little extent
3 = To a little extent
4 = To a moderate extent
5 = To a fairly large extent
6 = To a great extent
7 = To a very great extent

Select the corresponding number for each question and enter it on the separate response sheet.

17. To what extent does your job require you to do many different things, using a variety of your talents and skills?

18. To what extent does *your job involve doing a* <u>whole</u> task or unit of work?

19. To what extent is your job significant, in that it affects others in some important way?

20. To what extent does your job provide a great deal of freedom and independence in scheduling your work?

21. To what extent does your job provide a great deal of freedom and independence in selecting your own procedures to accomplish it?

22. To what extent are you able to determine how well you are doing your job without feedback from anyone else?

23. To what extent do <u>additional duties</u> interfere with the performance of your primary job?

24. To what extent do you have adequate tools and equipment to accomplish your job?

25. To what extent is the amount of work space provided adequate?

26. To what extent does your job provide the chance to know for yourself when you do a good job, and to be responsible for your own work?

27. To what extent does doing your job well affect a lot of people?

28. To what extent does *your job* provide you with the chance to finish completely the piece of work you have begun?

1 = Not at all
2 = To a very little extent
3 = To a little extent
4 = To a moderate extent
5 = To a fairly large extent
6 = To a great extent
7 = To a very great extent

29. To what extent does your job require you to use a number of complex skills?

30. To what extent does your job give you freedom to do your work as you see fit?

31. To what extent are you allowed to make the major decisions required to perform your job well?

32. To what extent are you proud of your job?

33. To what extent do you feel accountable to your supervisor in accomplishing your job?

34. To what extent do you know exactly what is expected of you in performing your job?

35. To what extent are your job performance goals difficult to accomplish?

36. To what extent are your job performance goals clear?

37. To what extent are your job performance goals specific?

38. To what extent are your job performance goals realistic?

39. To what extent do you perform the same tasks repeatedly within a short period of time?

40. To what extent are you faced with the same type of problem on a weekly basis?

41. To what extent are you aware of promotion/advancement opportunities that affect you?

42. To what extent do co-workers in your work group maintain high standards of performance?

43. To what extent do you have the opportunity to progress up your career ladder?

44. To what extent are you being prepared to accept increased responsibility?

45. To what extent do people who perform well receive recognition?

46. To what extent does your work give you a feeling of pride?

1 = Not at all
2 = To a very little extent
3 = To a little extent
4 = To a moderate extent
5 = To a fairly large extent
6 = To a great extent
7 = To a very great extent

47. To what extent do you have the opportunity to learn skills which will improve your promotion potential?

48. To what extent do you have the necessary supplies to accomplish your job?

49. To what extent do details (tasks not covered by primary or additional duty descriptions) interfere with the performance of your primary job?

50. To what extent does a bottleneck in your organization seriously affect the flow of work either to or from your group?

JOB DESIRES

The statements below deal with job related characteristics. Read each statement and choose the response which best represents how much <u>you would like to have each characteristic in your job</u>.

In my job, I would like to have the characteristics described:

1 = not at all
2 = A slight amount
3 = A moderate amount
4 = A fairly large amount
5 = A large amount
6 = A very large amount
7 = An extremely large amount

51. Opportunities to have independence in my work.

52. A job that is meaningful.

53. An opportunity for personal growth in my job.

54. Opportunities in my work to use my skills.

55. Opportunities to perform a variety of tasks.

56. A job in which tasks are repetitive.

57. A job in which tasks are relatively easy to accomplish.

SUPERVISION

The statements below describe characteristics of managers or supervisors. Indicate your agreement by choosing the phrase which best represents your attitude concerning your supervisor.

1 = Strongly disagree
2 = Moderately disagree
3 = Slightly disagree
4 = Neither agree nor disagree
5 = Slightly agree
6 = Moderately agree
7 = Strongly agree

Select the coresponding number for each statement and enter it on the separate response sheet.

58. My supervisor is a good planner.

59. My supervisor sets high performance standards.

60. My supervisor encourages teamwork.

61. My supervisor represents the group at all times.

62. My supervisor establishes good work procedures.

63. My supervisor has made his responsibilities clear to the group.

64. My supervisor fully explains procedures to each group member.

65. My supervisor performs well under pressure.

66. My supervisor takes time to help me when needed.

67. My supervisor asks members for their ideas on task improvements.

68. My supervisor explains how my job contributes to the overall mission.

69. My supervisor helps me set specific goals.

70. My supervisor lets me know when I am doing a good job.

71. My supervisor lets me know when I am doing a poor job.

72. My supervisor always helps me improve my performance.

73. My supervisor insures that I get job related training when needed.

74. My job performance has improved due to feedback received from my supervisor.

75. When I need technical advice, I usually go to my supervisor.

76. My supervisor frequently gives me feedback on how well I am doing my job.

WORK GROUP PRODUCTIVITY

The statements below deal with the output of your work group. The term "your work group" refers to you and your co-workers who work for the same supervisor. Indicate your agreement with the statement by selecting the phrase which best expresses your opinion.

1 = Strongly disagree
2 = Moderately disagree
3 = Slightly disagree
4 = Neither agree nor disagree
5 = Slightly agree
6 = Moderately agree
7 = Strongly agree

Select the corresponding number for each statement and enter it on the separate response sheet.

77. The quantity of output of your work group is very high.

78. The quality of output of your work group is very high.

79. When high priority work arises, such as short suspenses, crash programs, and schedule changes, the people in my work group do an outstanding job in handling these situations.

80. Your work group always gets maximum output from available resources (e.g., personnel and material).

81. Your work group's performance in comparison to similar work groups is very high.

ORGANIZATION CLIMATE

Below are items which describe characteristics of your organization. The term "your organization" refers to your squadron or staff agency. Indicate your agreement by choosing the phrase which best represents your opinion concerning your organization.

1 = Strongly disagree
2 = Moderately disagree
3 = Slightly disagree
4 = Neither agree nor disagree
5 = Slightly agree
6 = Moderately agree
7 = Strongly agree

Select the corresponding number for each item and enter it on the separate response sheet.

1 = Strongly disagree
2 = Moderately disagree
3 = Slightly disagree
4 = Neither agree or disagree
5 = Slightly agree
6 = Moderately agree
7 = Strongly agree

82. Ideas developed by my work group are readily accepted by management personnel above my supervisor.

83. My organization provides all the necessary information for me to do my job effectively.

84. My organization provides adequate information to my work group.

85. My work group is usually aware of important events and situations.

86. My complaints are aired satisfactorily.

87. My organization is very interested in the attitudes of the group members toward their jobs.

88. My organization has a very strong interest in the welfare of its people.

89. I am very proud to work for this organization.

90. I feel responsible to my organization in accomplishing its mission.

91. The information in my organization is widely shared so that those needing it have it available.

92. Personnel in my unit are recognized for outstanding performance.

93. I am usually given the opportunity to show or demonstrate my work to others.

94. There is a high spirit of teamwork among my co-workers.

95. There is outstanding cooperation between work groups of my organization.

96. My organization has clear-cut goals.

97. I feel motivated to contribute my best efforts to the mission of my organization.

98. My organization rewards individuals based on performance.

99. The goals of my organization are reasonable.

100. My organization provides accurate information to my work group.

JOB RELATED ISSUES

The items below are used to determine how satisfied you are with specific job related issues. Indicate your degree of satisfaction or dissatisfaction with each issue by choosing the most appropriate phrase.

1 = Extremely dissatisfied
2 = Moderately dissatisfied
3 = Slightly dissatisfied
4 = Neither satisfied nor dissatisfied
5 = Slightly satisfied
6 = Moderately satisfied
7 = Extremely satisfied

Select the corresponding number for each question and enter it on the separate response sheet.

101. Feeling of Helpfulness
The chance to help people and improve their welfare through the performance of my job. The importance of my job performance to the welfare of others.

102. Co-Worker Relationship
My amount of effort compared to the effort of my co-workers, the extent to which my co-workers share the load, and the spirit of teamwork which exists among my co-workers.

103. Family Attitude Toward Job
The recognition and the pride my family has in the work I do.

104. On-the-Job Training (OJT)
The OJT instructional methods and instructors' competence.

105. Technical Training (Other than OJT)
The technical training I have received to perform my current job.

106. Work Schedule
My work schedule; flexibility and regularity of my work schedule; the number of hours I work per week.

107. Job Security

108. Acquired Valuable Skills
The chance to acquire valuable skills in my job which prepare me for future opportunities.

109. My Job as a Whole

APPENDIX B

COMBAT EFFECTIVENESS QUESTIONNAIRE

Read each statement below and indicate your agreement with the statement by selecting the phrase which best expresses your opinion.

0 = Not applicable	4 = Neither agree nor disagree
1 = Strongly disagree	5 = Slightly agree
2 = Moderately disagree	6 = Moderately agree
3 = Slightly disagree	7 = Strongly agree

Select the corresponding number for each statement and enter it on the separate response sheet.

1. I am confident in the technical proficiency of my work group.

2. I am satisfied with the technical training (other than OJT) I have received to perform my current job.

3. My morale is high.

4. My work group is well trained to accomplish its mission.

5. I am satisfied with the training I receive while on the job.

6. I am confident in the on-the-job training received by my work group.

7. The on-the-job training I have received is appropriate for the job I am expected to perform.

8. I feel that "combat exercises" enhance my individual skills.

9. I think I am in very good physical condition.

*10. As a uniformed soldier, I accept my war-fighting responsibilities.

11. The equipment I use in my job is capable of performing its job.

12. I am satisfied with the maintenance of the equipment I use in my job.

13. The support I receive to keep equipment operating under emergency situations is adequate.

14. The supply system adequately supports the mission of my work group.

*15. If a foreign nation attacks an ally, the United States should join with other allies in the fight.

16. In my career field, I do not anticipate ever going into a war zone.

17. It is important to me personally to have a clear understanding of why my organization must be combat ready.

*18. I approve of war as a way to protect the sovereignty of the United States.

*(Item deleted from questionnaire)

0 = Not applicable
1 = Strongly disagree
2 = Moderately disagree
3 = Slightly disagree
4 = Neither agree nor disagree
5 = Slightly agree
6 = Moderately agree
7 = Strongly agree

19. If I am sent into a combat situation, I think I'll do all right.

20. I think I'm prepared to be involved in warfare.

*21. The supervisors I now serve under are the kind I would want to serve under in combat.

22. I am usually in good spirits.

23. On the whole, I think that I am well adjusted to Air Force life.

24. The morale of my work group is high.

25. It bothers me a great deal when I am ordered to do things which I don't see a good reason for doing.

*26. You can trust the Air Force to keep a promise.

27. I feel loyal to others within my work group.

28. My work group has confidence in its leaders.

29. I will not let my work group down.

30. I trust others within my work group.

31. I play sports or otherwise socialize with others within my organization.

32. I think my supervisor is a good leader.

33. The people in my work group work together as a team.

34. I consider my present job in the Air Force an important one in a war effort.

35. I realized my warfighting responsibilities when I joined the Air Force.

36. I am not worried about my family being taken care of should I go into a war zone.

37. The morale of my organization is high.

38. On the whole, I think the Air Force is giving me a chance to show what I can do.

*(Item deleted from questionnaire)

0 = Not applicable
1 = Strongly disagree
2 = Moderately disagree
3 = Slightly disagree
4 = Neither agree nor disagree
5 = Slightly agree
6 = Moderately agree
7 = Strongly agree

39. I can honestly say that I usually put all I have into my Air Force duties.

40. In general, I think the American public is trying to do everything they possibly can to back up the Armed Services.

*41. Most officers put their own welfare above the welfare of enlisted men and women.

42. I feel that the Air Force tries to control me in more ways than it needs.

43. I worry about being sent into a combat situation.

44. The Air Force places too much importance on military courtesy.

45. The Air Force places too much importance on spit and polish.

46. My experiences in the Air Force have made me more bitter and cynical.

47. It is important to me personally to be a good soldier.

48. I feel that the Air Force is trying its best to look out for the welfare of its people.

49. For computer purposes, answer this question with response number two (2).

In the following statements indicate to what extent the statement is true by choosing the phrase which best represents your opinion.

0 = Not applicable
1 = Not at all
2 = To a very little extent
3 = To a little extent
4 = To a moderate extent
5 = To a fairly large extent
6 = To a great extent
7 = To a very great extent

50. To what extent do you think training drills/exercises test your organization's combat readiness?

51. To what extent do you feel your organization is combat ready?

52. To what extent has your training given you the skills needed to perform your job?

*(Item deleted from questionaire)

0 = Not applicable
1 = Not at all
2 = To a very little extent
3 = To a little extent
4 = To a moderate extent
5 = To a fairly large extent
6 = To a great extent
7 = To a very great extent

53. To what extent is your work group technically qualified to accomplish their assigned mission?

54. To what extent do you think your training has prepared you for your potential combat mission?

55. To what extent is there conflict between your work group and another work group in your organization?

56. To what extent is there competition between your work group and one or more other work groups which adversely affects the performance of your work group?

57. When you seek medical care, to what extent do you feel you get a careful examination and get whatever treatment might be necessary?

58. To what extent has your chemical warfare training prepared you for that potential threat?

Select the response which best describes your attitude concerning the following hypothetical situations.

1 = I would definitely refuse to go
2 = I would probably refuse to go
3 = I would try to avoid going
4 = Neutral
5 = I would go if ordered
6 = I would probably volunteer to go
7 = I would definitely volunteer to go

*59. The Air Force needed people with your job specialty to go into a war zone somewhere in Europe.

*60. The Air Force needed people with your job specialty to go into a war zone somewhere in the Middle East.

*61. The Air Force needed people with your job specialty to go into a war zone somewhere in Africa.

*62. The Air Force needed people with your job specialty to go into a war zone somewhere in the Far East.

*63. The Air Force needed people with your job specialty to go into a war zone somewhere in Latin America (South or Central America).

*64. The United States was involved in a war that the American people supported.

*65. The United States was involved in a war that the American people did not support.

*(Item deleted from questionnaire)

66. Which of the following best describes your individual role during warfare?

1 = Direct combat role
2 = War skill
3 = Security police augmentee
4 = Involved in a support role
5 = Nov involved

67. Considering my skill and experience, the pay and benefits I receive in the Air Force, compared to the civilian job market, are:

1 = Extremely low
2 = Moderately low
3 = Slightly low
4 = About right
5 = Slightly high
6 = Moderately high
7 = Extremely high

68. If it were up to you, what kind of unit would you rather be in?

1 = In a non-combat unit that will stay in the United States.
2 = In a combat unit based in the United States.
3 = In a non-combat unit overseas.
4 = In a combat unit overseas.

69. Why did you join the military?

1 = To avoid the draft
2 = Family, peer, or social pressures
3 = To have a steady job while deciding about the future
4 = To learn a skill or trade
5 = The military pay and benefits
6 = To serve my country
7 = None of the above

70. Which of the following best describes your experience with technical school in the career field to which you are currently assigned?

1 = There is no technical school in my career field.

2 = There is a technical school; however, I did not attend.

3 = There is no technical school in my career field; however, I attended an alternative to technical school (Academic Course, Self-Study, etc.).

4 = There is no technical school in my career field; however, I have received adequate training on the job.

5 = My technical school training was poor.

6 = My technical school training was adequate.

7 = My technical school training was excellent.

APPENDIX C

ORGANIZATIONAL ASSESSMENT PACKAGE MEASURES AND VARIABLES

This appendix consists of six sections. Each section describes the factors which comprise each component of the Organizational Assessment Package. Sections I, II, III, and IV refer to Work Itself, Job Enrichment, Work Group Process, and Work Group Output, respectively. Section V describes the Demographic items which are part of the Organizational Assessment Package. Section VI contains a list of all variables. All the items in the OAP questionnaire used seven-point,Likert-type responses, except the demographic items. This appendix identifies for each OAP questionnaire item the "variable number" used in analysis as well as the "statement number" (which refers to the placement of the item in OAP questionnaire). Additionally, Section VI identifies the OAP "Factor" for each variable in the LMDC model. The following information was extracted from LMDC (1982:2-12).

SECTION I

WORK ITSELF

This component of the OAP model has to do with the task properties (technologies) and environmental conditions of the job. It assesses the pattern of characteristics members bring to the group or organization, and patterns of differentiation and integration among position and roles.

A. Job Desires (Need for Enrichment Index)-Factor 806: Has to do with job related characteristics (autonomy, personal growth, use of skills, etc.) that the individual would like in a job.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
(In my job, I would like to have the characteristics described--from "not at all" to "an extremely large amount")		
V249	51	Opportunities to have independence in my work.
V250	52	A job that is meaningful.
V251	53	The opportunity for personal growth in my job.
V252	54	Opportunities in my work to use my skills.
V253	55	Opportunities to perform a variety of tasks.

B. Job Performance Goals - Factor 810: Measures the extent to which job performance goals are clear, specific, realistic, understandable, and challenging.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V217	34	To what extent do you know exactly what is expected of you in performing your job?
V281	35	To what extent are your job performance goals difficult to accomplish?
V273	36	To what extent are your job performance goals clear?
V274	37	To what extent are your job performance goals specific?
V221	38	To what extent are your job performance goals realistic?

C. Task Characteristics - Factor 812: A combination of skill variety, task identity, task significance, and job feedback designed to measure several aspects of one's job.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V201	17	To what extent does your job require you to do many different things, using a variety of your talents and skills?
V202	18	To what extent does your job involve doing a whole task or unit of work?
V203	19	To what extent is your job significant, in that it affects others in some important way?
V272	22	To what extent are you able to determine how well you are doing your job without feedback from anyone else?
V209	26	To what extent does your job provide the chance to know for yourself when you do a good job, and to be responsible for your own work?
V210	27	To what extent does doing your job well affect a lot of people?
V211	28	To what extent does your job provide you with a chance to finish completely the piece of work you have begun?
V212	29	To what extent does your job require you to use a number of complex skills?

D. Task Autonomy - Factor 813: Measures the degree to which the job provides freedom to do the work as one sees fit, discretion in scheduling, decision making, and means for accomplishing a job.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V270	20	To what extent does your job provide a great deal of freedom and independence in scheduling your work?
V271	21	To what extent does your job provide a great deal of freedom and independence in selecting your own procedures to accomplish it?

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V213	30	To what extent does your job give you freedom to do your work as you see fit?
V214	31	To what extent are you allowed to make the major decisions required to perform your job well?

E. Work Repetition - Factor 814: Measures the extent to which one performs the same tasks or faces the same type of problems in his or her job on a regular basis.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V226	39	To what extent do you perform the same tasks repeatedly within a short period of time?
V227	40	To what extent are you faced with the same type of problem on a weekly basis?

F. Desired Repetitive Easy Tasks - Factor 816: Measures the extent to which one desires his or her job to involve repetitive tasks or tasks that are easy to accomplish.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V255	56	A job in which tasks are repetitive.
V258	57	A job in which tasks are relatively easy to accomplish.

G. Job Related Training - Factor 823: Measures the extent to which one is satisfied with on-the-job and technical training received.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V711	104	On-the-job Training (OJT) The OJT instructional methods and instructors' competence.
V712	105	Technical Training (Other than OJT) The technical training I have received to perform my current job.

H. Job Influences (Not a Statistical Factor):

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V216	33	To what extent do you feel accountable to your supervisor in accomplishing your job?
V238	42	To what extent do co-workers in your work group maintain high standards of performance?

SECTION II

JOB ENRICHMENT

This component of the OAP model measures the degree to which the job itself is interesting, meaningful, challenging, and responsible.

A. Skill Variety - Factor 800: Measures the degree to which a job requires a variety of different tasks or activities in carrying out the work; involves the use of a number of different skills and talents of the worker; skills required are valued by the worker.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V201	17	To what extent does your job require you to do many different things, using a variety of your talents and skills?
V212	29	To what extent does your job require you to use a number of complex skills?

B. Task Identity - Factor 801: Measures the degree to which the job requires completion of a "whole" and identifiable piece of work from beginning to end.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V202	18	To what extent does your job involve doing a whole task or unit of work?

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V211	28	To what extent does your job provide you with a chance to finish completely the piece of work you have begun?

C. Task Significance - Factor 802: Measures the degree to which the job has a substantial impact on the lives or work of others; the importance of the job.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V203	19	To what extent is your job significant, in that it affects others in some important way?
V210	27	To what extent does doing your job well affect a lot of people?

D. Job Feedback - Factor 804: Measures the degree to which carrying out the work activities required by the job results in the worker obtaining clear and direct information about job outcomes or information on good and poor performance.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V272	22	To what extent are you able to determine how well you are doing your job without feedback from anyone else?
V209	26	To what extent does your job provide the chance to know for yourself when you do a good job, and to be responsible for your own work?

E. Need for Enrichment Index (Job Desires) - Factor 806: Has to do with job related characteristics (autonomy, personal growth, use of skills, etc.) that the individual would like in a job.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
(In my job, I would like to have the characteristics described--from "not at all" to "an extremely large amount").		
V249	51	Opportunities to have independence in my work.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V250	52	A job that is meaningful.
V251	53	The opportunity for personal growth in my job.
V252	54	Opportunities in my work to use my skills.
V253	55	Opportunities to perform a variety of tasks.

F. Job Motivation Index - Factor 807: A composite index derived from the six job characteristics that reflects the overall "motivating potential" of a job; the degree to which a job will prompt high internal work motivation on the part of job incumbents.

800	Skill Variety
801	Task Identity
802	Task Significance
804	Job Feedback
805	Work Support
813	Task Autonomy

Formula: ((800+801+802+805)/4)(813)(804)

G. OJI Total Score - Factor 808: Assesses one's perception of motivation provided by his or her job. This factor is a variation of theory employed by other job motivation factors. Score is computed using the variables in the following formula:

(V201+V202+V203+V270+V271+V272
+8-V206+V207+V208+V209+V210
+V211+V212+V213)

H. Job Motivation Index - Additive - Factor 809: This factor is a variation of theory employed by other job motivation factors. Index is computed using the following factors:

800	Skill Variety
801	Task Identity
802	Task Significance
804	Work Repetition
805	Work Support
813	Task Autonomy

Formula: ((800+801+802+805)/4)+813+804

I. Motivation Potential Score - Factor 825: This factor is another variation of theory employed by other job motivation factors. It ranges between 0 and 343 with 109 being the Air Force average. Low scores indicate a poorly motivating job. Score is computed using the following factors:

800	Skill Variety
801	Task Identity
802	Task Significance
804	Job Feedback
813	Task Autonomy

Formula: (800+801+802)/3)(813)(804)

SECTION III

WORK GROUP PROCESS

This component assesses the pattern of activity and interaction among the group members. The following OAP factors measure leadership and work group process.

A. Performance Barriers/Blockages (Work Support) - Factor 805: Measures the degree to which work performance is hindered by additional duties, details, inadequate tools, equipment, or work space.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V206	23	To what extent do additional duties interfere with the performance of your primary job?
V207	24	To what extent do you have adequate tools and equipment to accomplish your job?
V208	25	To what extent is the amount of work space provided adequate?

Formula: (8-V206+V207+V208)/3

B. Management and Supervision - Factor 818: Measures the degree to which the worker has high performance standards and good work procedures. Measures support and guidance received, and the overall quality of supervision.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V404	58	My supervisor is a good planner.
V405	59	My supervisor sets high performance standards.
V410	60	My supervisor encourages teamwork.
V411	61	My supervisor represents the group at all times.
V412	62	My supervisor establishes good work procedures.
V413	63	My supervisor has made his responsibilities clear to the group.
V445	64	My supervisor fully explains procedures to each group member.
V416	65	My supervisor performs well under pressure.

C. Work Interferences (Not a Statistical Factor): Identifies things which impede an individual's job performance.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V277	48	To what extent do you have the necessary supplies to accomplish your job?
V278	49	To what extent do details (task not covered by primary or additional duty descriptions) interfere with the performance of your primary job?
V279	50	To what extent does a bottleneck in your organization seriously affect the flow of work either to or from your group?

D. Supervisory Communications Climate - Factor 819: Measures the degree to which the worker perceives that there is good rapport with supervisors, that there is a good working environment, that innovation for task improvement is encouraged, and that rewards are based upon performance.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V 426	67	My supervisor asks members for their ideas on task improvements.
V 428	68	My supervisor explains how my job contributes to the overall mission.
V 431	69	My supervisor helps me set specific goals.
V 433	70	My supervisor lets me know when I am doing a good job.
V 435	72	My supervisor always helps me improve my performance.
V 436	73	My supervisor insures that I get job related training when needed.
V 437	74	My job performance has improved due to feedback received from my supervisor.
V 442	76	My supervisor frequently gives me feedback on how well I am doing my job.

E. Organizational Communications Climate - Factor 820: Measures the degree to which the worker perceives that there is an open communications environment in the organization, and that adequate information is provided to accomplish the job.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V 300	82	Ideas developed by my work group are readily accepted by management personnel above my supervisor.
V 301	83	My organization provides all the necessary information for me to do my job effectively.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V302	84	My organization provides adequate information to my work group.
V303	85	My work group is usually aware of important events and situations.
V304	86	My complaints are aired satisfactorily.
V309	91	The information in my organization is widely shared so that those needing it have it available.
V314	96	My organization has clear-cut goals.
V317	99	The goals of my organization are reasonable.
V318	100	My organization provides accurate information to my work group.

F. Supervisory Assistance (Not a Statistical Factor): Measures the extent to which a supervisor helps the subordinate.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V424	66	My supervisor takes time to help me when needed.
V434	71	My supervisor lets me know when I am doing a poor job.
V439	75	When I need technical advice, I usually go to my supervisor.

SECTION IV

WORK GROUP OUTPUT

This component of the OAP model measures task performance, group development, and effects on group members. Assesses the quantity and quality of task performance and

alteration of the group's relation to the environment. Assesses changes in positions and role patterns, and in the development of norms. Assesses changes on skills and attitudes, and effects on adjustment. The following OAP factors measure the work group output.

A. Pride - Factor 811: Measures the pride in one's work.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V215	32	To what extent are you proud of your job?
V275	46	To what extent does your work give you a feeling of pride?

B. Advancement/Recognition - Factor 817: Measures one's awareness of advancement and recognition, and feelings of being prepared (i.e., learning new skills for promotion).

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V234	41	To what extent are you aware of promotion/advancement opportunities that affect you?
V239	43	To what extent do you have the opportunity to progress up your career ladder?
V240	44	To what extent are you being prepared to accept increased responsibility?
V241	45	To what extent do people who perform well receive recognition?
V276	47	To what extent do you have the opportunity to learn skills which will improve your promotion potential?

C. Work Group Effectiveness (Perceived Productivity) - Factor 821: Measures one's view of the quantity, quality, and efficiency of work generated by his or her work group.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V259	77	The quantity of output of your work group is very high.
V260	78	The quality of output of your work group is very high.
V261	79	When high priority work arises, such as short suspenses, crash programs, and schedule changes, the people in my work group do an outstanding job in handling these situations.
V264	80	Your work group always gets maximum output from available resources (e.g., personnel and material).
V265	81	Your work group's performance in comparison to similar work groups is very high.

D. Job Related Satisfaction - Factor 822: Measures the degree to which the worker is generally satisfied with factors surrounding the job.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V705	101	Feeling of Helpfulness The chance to help people and improve their welfare through the performance of my job. The importance of my job performance to the welfare of others.
V709	102	Co-worker Relationships My amount of effort compared to the effort of my co-workers, the extent to which my co-workers share the load, and the spirit of teamwork which exists among my co-workers.
V710	103	Family Attitude Toward Job The recognition and the pride my family has in the work I do.
V717	106	Work Schedule My work schedule; flexibility and regularity of my work schedule; the number of hours I work per week.
V718	107	Job Security

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V719	108	Acquired Valuable Skills The chance to acquire valuable skills in my job which prepare me for future opportunities.
V723	109	My Job as a Whole

E. General Organizational Climate - Factor 824: Measures the individual's perception of his or her organizational environment as a whole (i.e., spirit of team work, communications, organizational pride, etc.).

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V305	87	My organization is very interested in the attitudes of the group members toward their jobs.
V306	88	My organization has a very strong interest in the welfare of its people.
V307	89	I am very proud to work for this organization.
V308	90	I feel responsible to my organization in accomplishing its mission.
V310	92	Personnel in my unit are recognized for outstanding performance.
V311	93	I am usually given the opportunity to show or demonstrate my work to others.
V312	94	There is a high spirit of teamwork among my co-workers.
V313	95	There is outstanding cooperation between work groups of my organization.
V315	97	I feel motivated to contribute my best efforts to the mission of my organization.
V316	98	My organization rewards individuals based on performance.

SECTION V

OAP DEMOGRAPHIC ITEMS

This section describes the descriptive or background information about the respondents to the OAP survey.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
-	-	Supervisor's Code
-	-	Work Group Code
-	-	Sex
-	-	Your age is
-	-	You are (officer, enlisted, GS, etc.)
-	-	Your pay grade is
-	-	Primary AFSC
-	-	Duty AFSC

(Note: The above items are contained on the response sheet.)

V001	-	(Not Used)
V002	-	(Not Used)
V003	1	Total years in the Air Force: 1. Less than 1 year 2. More than 1 year, less than 2 years 3. More than 2 years, less than 3 years 4. More than 3 years, less than 4 years 5. More than 4 years, less than 8 years 6. More than 8 years, less than 12 years 7. More than 12 years

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V004	2	Total months in present career field: 1. Less than 1 month 2. More than 1 month, less than 6 months 3. More than 6 months, less than 12 months 4. More than 12 months, less than 18 months 5. More than 18 months, less than 24 months 6. More than 24 months, less than 36 months 7. More than 36 months
V005	3	Total months at this station: 1. Less than 1 month 2. More than 1 month, less than 6 months 3. More than 6 months, less than 12 months 4. More than 12 months, less than 18 months 5. More than 18 months, less than 24 months 6. More than 24 months, less than 36 months 7. More than 36 months
V006	4	Total months in present position: 1. Less than 1 month 2. More than 1 month, less than 6 months 3. More than 6 months, less than 12 months 4. More than 12 months, less than 18 months 5. More than 18 months, less than 24 months 6. More than 24 months, less than 36 months 7. More than 36 months
V007	5	Your Ethnic Group is: 1. American Indian or Alaskan Native 2. Asian or Pacific Islander 3. Black, not of Hispanic Origin 4. Hispanic 5. White, not of Hispanic Origin 6. Other
V008	11	Which of the following "best" describes your marital status? 0. Not married. 1. Married: Spouse is a civilian employed outside home. 2. Married: Spouse is a civilian employed outside home - geographically separated.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
		3. Married: Spouse not employed outside home. 4. Married: Spouse not employed outside home - geographically separated. 5. Married: Spouse is a military member. 6. Married: Spouse is a military member - geographically separated. 7. Single parent.

NOTE: Variable 008, statement 11, was added to the OAP on 19 Jan, 80 and replaced variable 014 which appears on page 150. Although no longer used, Variable 014 is still shown because data collected from about 25,000 samples for this variable remains in the data base.

V009	6	Your highest education level obtained is: 1. Non-high school graduate 2. High school graduate or GED 3. Less than two years college 4. Two years or more college 5. Bachelors Degree 6. Masters Degree 7. Doctoral Degree
V010	7	Highest level of professional military education (residence or correspondence): 0. None or not applicable 1. NCO Orientation Course or USAF Supervisor Course (NCO Phase 1 or 2) 2. NCO Leadership School (NCO Phase 3) 3. NCO Academy (NCO Phase 4) 4. Senior NCO Academy (NCO Phase 5) 5. Squadron Officer School 6. Intermediate Service School (i.e., ACSC, AFSC) 7. Senior Service School (i.e., AWC, ICAF, NWC)
V011	8	How many people do you directly supervise? 1. None 2. 1 3. 2 4. 3 5. 4 to 5 6. 6 to 8 7. 9 or more

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V012	9	For how many people do you write performance reports? 1. None 2. 1 3. 2 4. 3 5. 4 to 5 6. 6 to 8 7. 9 or more
V013	10	Does your supervisor actually write your performance reports? 1. Yes 2. No 3. Not Sure
V014	11	Your work requires you to work primarily: 1. Alone 2. With one or two people 3. As a small work group (3-5 people) 4. As a large work group (6 or more people) 5. Other
V015	12	What is your usual work schedule? 1. Day shift, normally stable hours 2. Swing shift (about 1600-2400) 3. Mid shift (about 2400 - 0800) 4. Rotating shift schedule 5. Day or shift work with irregular/ unstable hours 6. Frequent TDY/travel or frequently on-call to report to work 7. Crew schedule
V016	13	How often does your supervisor hold group meetings? 1. Never 2. Occasionally 3. Monthly 4. Weekly 5. Daily 6. Continuously
V017	14	How often are group meetings used to solve problems and establish goals? 1. Never 2. Occasionally 3. About half the time 4. All of the time

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
V018	15	What is your aeronautical rating and current status? 1. Nonrated, not on aircrew 2. Nonrated, now on aircrew 3. Rated, in crew/operations job 4. Rated, in support job
V019	16	Which of the following best describes your career or employment intentions? 1. Planning to retire in the next 12 months 2. Will continue in/with the Air Force as a career 3. Will most likely continue in/with the Air Force 4. May continue in/with the Air Force 5. Will most likely not make the Air Force a career 6. Will separate/terminate from the Air Force as soon as possible

SECTION VI

OAP VARIABLES

VARIABLE NUMBER	LMDC FACTOR	STATEMENT NUMBER	STATEMENT
V201	800/812	17	To what extent does your job require you to do many different things, using a variety of your talents and skills?
V202	801/812	18	To what extent does your job involve doing a <u>whole</u> task or unit of work?
V203	802/812	19	To what extent is your job significant, in that it affects others in some important way?

VARIABLE NUMBER	LMDC FACTOR	STATEMENT NUMBER	STATEMENT
V206	805	23	To what extent do additional duties interfere with the performance of your primary job?
V207	805	24	To what extent do you have adequate tools and equipment to accomplish your job?
V208	805	25	To what extent is the amount of work space provided adequate?
V209	804/812	26	To what extent does your job provide the chance to know for yourself when you do a good job, and to be responsible for your own work?
V210	802/812	27	To what extent does doing your job well affect a lot of people?
V211	801/812	28	To what extent does your job provide you with a chance to finish completely the piece of work you have begun?
V212	800/812	29	To what extent does your job require you to use a number of complex skills?
V213	813	30	To what extent does your job give you freedom to do your work as you see fit?
V214	813	31	To what extent are you allowed to make the major decisions required to perform your job well?
V215	811	32	To what extent are you proud of your job?
V216	(1)	33	To what extent do you feel accountable to your supervisor in accomplishing your job?

VARIABLE NUMBER	LMDC FACTOR	STATEMENT NUMBER	STATEMENT
V217	810	34	To what extent do you know exactly what is expected of you in performing your job?
V218	810	35	To what extent are your job performance goals difficult to accomplish?
V221	810	38	To what extent are your job performance goals realistic?
V226	814	39	To what extent do you perform the same tasks repeatedly within a short period of time?
V227	814	40	To what extent are you faced with the same type of problem on a weekly basis?
V234	817	41	To what extent are you aware of promotion/advancement opportunities that affect you?
V238	(1)	42	To what extent do co-workers in your work group maintain high standards of performance?
V239	817	43	To what extent do you have the opportunity to progress up your career ladder?
V240	817	44	To what extent are you being prepared to accept increased responsibility?
V241	817	45	To what extent do people who perform well receive recognition?
(In my job, I would like to have the characteristics described--from "not at all" to "an extremely large amount")			
V249	806	51	Opportunities to have independence in my work.
V250	806	52	A job that is meaningful.
V251	806	53	The opportunity for personal growth in my job.

VARIABLE NUMBER	LMDC FACTOR	STATEMENT NUMBER	STATEMENT
V 252	806	54	Opportunities in my work to use my skills.
V 253	806	55	Opportunities to perform a variety of tasks.
V 255	816	56	A job in which tasks are repetitive.
V 258	816	57	A job in which tasks are relatively easy to accomplish.
V 259	821	77	The quantity of output of your work group is very high.
V 260	821	78	The quality of output of your work group is very high.
V 261	821	79	When high priority work arises, such as short suspenses, crash programs, and schedule changes, the people in my work group do an outstanding job in handling these situations.
V 264	821	80	Your work group always gets maximum output from available resources (e.g., personnel and material).
V 265	821	81	Your work group's performance in comparison to similar work groups is very high.
V 270	813	20	To what extent does your job provide a great deal of freedom and independence in scheduling your work?
V 271	813	21	To what extent does your job provide a great deal of freedom and independence in selecting your own procedures to accomplish it?
V 272	804/812	22	To what extent are you able to determine how well you are doing your job without feedback from anyone else?

VARIABLE NUMBER	LMDC FACTOR	STATEMENT NUMBER	STATEMENT
V273	810	36	To what extent are your job performance goals clear?
V274	810	37	To what extent are your job performance goals specific?
V275	811	46	To what extent does your work give you a feeling of pride?
V276	817	47	To what extent do you have the opportunity to learn skills which will improve your promotion potential?
V277	(2)	48	To what extent do you have the necessary supplies to accomplish your job?
V278	(2)	49	To what extent do details (task not covered by primary or additional duty descriptions) interfere with the performance of your primary job?
V279	(2)	50	To what extent does a bottleneck in your organization seriously affect the flow of work either to or from your group?
V300	820	82	Ideas developed by my work group are readily accepted by management personnel above my supervisor.
V301	820	83	My organization provides all the necessary information for me to do my job effectively.
V302	820	84	My organization provides adequate information to my work group.
V303	820	85	My work group is usually aware of important events and situations.
V304	820	86	My complaints are aired satisfactorily.

VARIABLE NUMBER	LMDC FACTOR	STATEMENT NUMBER	STATEMENT
V305	824	87	My organization is very interested in the attitudes of the group members toward their jobs.
V306	824	88	My organization has a very strong interest in the welfare of its people.
V307	824	89	I am very proud to work for this organization.
V308	824	90	I feel responsible to my organization in accomplishing its mission.
V309	820	91	The information in my organization is widely shared so that those needing it have it available.
V310	824	92	Personnel in my unit are recognized for outstanding performance.
V311	824	93	I am usually given the opportunity to show or demonstrate my work to others.
V312	824	94	There is a high spirit of teamwork among my co-workers.
V313	824	95	There is outstanding cooperation between work groups of my organization.
V314	820	96	My organization has clear-cut goals.
V315	824	97	I feel motivated to contribute my best efforts to the mission of my organization.
V316	824	98	My organization rewards individuals based on performance.
V317	820	99	The goals of my organization are reasonable.

VARIABLE NUMBER	LMDC FACTOR	STATEMENT NUMBER	STATEMENT
V318	820	100	My organization provides accurate information to my work group.
V404	818	58	My supervisor is a good planner.
V405	818	59	My supervisor sets high performance standards.
V410	818	60	My supervisor encourages teamwork.
V411	818	61	My supervisor represents the group at all times.
V412	818	62	My supervisor establishes good work procedures.
V413	818	63	My supervisor has made his responsibilities clear to the group.
V416	818	65	My supervisor performs well under pressure.
V424	(3)	66	My supervisor takes time to help me when needed.
V426	819	67	My supervisor asks members for their ideas on task improvements.
V428	819	68	My supervisor explains how my job contributes to the overall mission.
V431	819	69	My supervisor helps me set specific goals.
V433	819	70	My supervisor lets me know when I am doing a good job.
V434	(3)	71	My supervisor lets me know when I am doing a poor job.
V435	819	72	My supervisor always helps me improve my performance.

VARIABLE NUMBER	LMDC FACTOR	STATEMENT NUMBER	STATEMENT
V436	819	73	My supervisor insures that I get job related training when needed.
V437	819	74	My job performance has improved due to feedback received from my supervisor.
V439	(3)	75	When I need technical advice, I usually go to my supervisor.
V442	819	76	My supervisor frequently gives me feedback on how well I am doing my job.
V445	818	64	My supervisor fully explains procedures to each group member.
V705	822	101	Feeling of Helpfulness The chance to help people and improve their welfare through the performance of my job. The importance of my job performance to the welfare of others.
V709	822	102	Co-worker Relationships My amount of effort compared to the effort of my co-workers, the extent which my co-workers share the load, and the spirit of teamwork which exists among my co-workers.
V710	822	103	Family Attitude Toward Job The recognition and the pride my family has in the work I do.
V711	823	104	On-the-Job Training (OJT) The OJT instructional methods and instructors' competence.
V712	823	105	Technical Training (Other than OJT) The technical training I have received to perform my current job.

VARIABLE NUMBER	LMDC FACTOR	STATEMENT NUMBER	STATEMENT
V717	822	106	Work Schedule My work schedule; flexibility and regularity of my work schedule; the number of hours I work per week.
V718	822	107	Job Security
V719	822	108	Acquired Valuable Skills The chance to acquire valuable skills in my job which prepare me for future opportunities.
V723	822	109	My Job as a Whole

(1) These variables are elements of "Job Influences" (Not a Statistical Factor).

(2) These variables are elements of "Work Interferences" (Not a Statistical Factor).

(3) These variables are elements of "Supervisory Assistance" (Not a Statistical Factor).

APPENDIX D

COMBAT EFFECTIVENESS MODEL

This appendix will identify the questionnaire items that LMDC has proposed for each of the dimensions contained in the combat effectiveness model. Each questionnaire item will be identified by "variable number" (used in data analysis), "questionnaire number" (which refers to the placement of the item in a questionnaire), and the "survey instrument" the questionnaire items were taken from [Organizational Assessment Package (OAP) or Combat Effectiveness Questionnaire (CEQ)]. Those variables marked by an asterisk failed to gain Air Force approval and were answered with a zero by respondents.

State of Training

This dimension is comprised of three categories of training.

A. Job Related Training: Measures the satisfaction, confidence, and appropriateness of the technical and on-the-job training received to perform one's job.

VARIABLE NUMBER	SURVEY	QUESTION NUMBER	
Q2	CEQ	2	I am satisfied with the technical training (other than OJT) I have received to perform my current job.
Q5	CEQ	5	I am satisfied with the training I receive while on the job.

VARIABLE NUMBER	SURVEY	QUESTION NUMBER	
Q6	CEQ	6	I am confident in the on-the-job training received by my work group.
Q7	CEQ	7	The on-the-job training I have received is appropriate for the job I am expected to perform.

B. Combat Related Training: Measures the extent that combat drills or exercises enhance individual skills and tests the unit's combat readiness for the potential threat.

VARIABLE NUMBER	SURVEY	QUESTION NUMBER	
Q8	CEQ	8	I feel that "combat exercises" enhance my individual skills.
Q50	CEQ	50	To what extent do you think training drills/exercises test your organization's combat readiness?
Q51	CEQ	51	To what extent do you feel your organization is combat ready?
Q52	CEQ	52	To what extent has your training given you the skills needed to perform your job?
Q54	CEQ	54	To what extent do you think your training has prepared you for your potential combat mission?
Q58	CEQ	58	To what extent has your chemical warfare training prepared you for that potential threat?

C. Effects of Training: Measures the confidence one has that the training has adequately prepared oneself and one's work group to perform their job.

VARIABLE NUMBER	SURVEY	QUESTION NUMBER	
Q1	CEQ	1	I am confident in the technical proficiency of my work group.
Q4	CEQ	4	My work group is well trained to accomplish its mission.
Q19	CEQ	19	If I am sent into a combat situation, I think I'll do all right.
Q20	CEQ	20	I think I'm prepared to be involved in warfare.
Q53	CEQ	53	To what extent is your work group technically qualified to accomplish their assigned mission?

Logistics

Logistics measures the degree that equipment is sufficient to complete the job and is adequately maintained to support the assigned mission.

VARIABLE NUMBER	SURVEY	QUESTION NUMBER	
Q11	CEQ	11	The equipment I use in my job is capable of performing its job.
Q12	CEQ	12	I am satisfied with the maintenance of the equipment I use in my job.
Q13	CEQ	13	The support I receive to keep equipment operating under emergency situations is adequate.
Q14	CEQ	14	The supply system adequately supports the mission of my work group.
V 207	OAP	24	To what extent do you have adequate tools and equipment to accomplish your job?

Will to Fight

The will to fight concept is an adaptation from Hauser (1980) of how to measure the soldier's willingness to fight.

A. Submission: Submission measures the individual's acceptance of his role in the military and the use of the military as a means of protecting the interests of the United States.

VARIABLE NUMBER	SURVEY	QUESTION NUMBER	
Q10*	CEQ	10	As a uniformed soldier, I accept my war fighting responsibilities.
Q15*	CEQ	15	If a foreign nation attacks an ally, the United States should join with other allies in the fight.
Q17	CEQ	17	It is important to me personally to have a clear understanding of why my organization must be combat ready.
Q18*	CEQ	18	I approve of war as a way to protect the sovereignty of the United States.
Q19	CEQ	19	If I am sent into a combat situation, I think I'll do all right.
Q20	CEQ	20	I think I'm prepared to be involved in warfare.
Q21*	CEQ	21	The supervisors I now serve under are the kind I would want to serve under in combat.
V308	OAP	90	I feel responsible to my organization in accomplishing its mission.

* Questions which have been deleted.

B. Fear: Measures one's confidence in leaders, trust among the work group, and worry about being sent into combat.

VARIABLE NUMBER	SURVEY	QUESTION NUMBER	
Q28	CEQ	28	My work group has confidence in its leaders.
Q30	CEQ	30	I trust others within my work group.
Q43	CEQ	43	I worry about being sent into a combat situation.

C. Loyalty: Measures the loyalty one feels towards one's work group.

VARIABLE NUMBER	SURVEY	QUESTION NUMBER	
Q27	CEQ	27	I feel loyal to others within my work group.
Q29	CEQ	29	I will not let my work group down.

D. Pride: Measures one's pride in one's job and organization.

VARIABLE NUMBER	SURVEY	QUESTION NUMBER	
V215	OAP	32	To what extent are you proud of your job?
V275	OAP	46	To what extent does your work give you a feeling of pride?
V307	OAP	89	I am very proud to work for this organization.

Morale

The index of morale follows the concept presented by Richardson (1978) which breaks morale into three elements,

plus LMDC added several job related attitudes, and an alienation component.

A. Individual Psychological Well-Being: Measures one's personal morale and concern for the support of others outside one's work group, which, in turn, help foster high morale.

VARIABLE NUMBER	SURVEY	QUESTION NUMBER	
Q3	CEQ	3	My morale is high.
Q9	CEQ	9	I think I am in very good physical condition.
Q22	CEQ	22	I am usually in good spirits.
Q23	CEQ	23	On the whole, I think that I am well adjusted to Air Force life.
Q36	CEQ	36	I am not worried about my family being taken care of should I go into a war zone.
Q38	CEQ	38	On the whole, I think the Air Force is giving me a chance to show what I can do.
Q40	CEQ	40	In general, I think the American public is trying to do everything they possibly can to back up the Armed Services.
Q48	CEQ	48	I feel that the Air Force is trying its best to look out for the welfare of its people.
Q57	CEQ	57	When you seek medical care, to what extent do you feel you get a careful examination and get whatever treatment might be necessary?

B. Work Group Morale: Measures the perception of morale in one's work group and the ability of the group to work as a team.

VARIABLE NUMBER	SURVEY	QUESTION NUMBER	
Q24	CEQ	24	The morale of my work group is high.
Q33	CEQ	33	The people in my work group work together as a team.

C. Organizational Morale: Measures the level of organizational morale through the concern for the welfare of people, pride in the organization, and motivation to perform.

VARIABLE NUMBER	SURVEY	QUESTION NUMBER	
Q37	CEQ	37	The morale of my organization is high.
V305	OAP	87	My organization is very interested in the attitudes of the group members toward their jobs.
V306	OAP	88	My organization has a very strong interest in the welfare of its people.
V307	OAP	89	I am very proud to work for this organization.
V315	OAP	97	I feel motivated to contribute my best efforts to the mission of my organization.

D. Collection of Job Related Attitudes: Measures one's feeling as to the importance of one's job in a war and degree to which one is generally satisfied with factors surrounding the job.

VARIABLE NUMBER	SURVEY	QUESTION NUMBER	
Q34	CEQ	34	I consider my present job in the Air Force an important one in a war effort.

VARIABLE NUMBER	SURVEY	QUESTION NUMBER	
V705	OAP	101	Feeling of Helpfulness. The chance to help people and improve their welfare through the performance of my job. The importance of my job performance to the welfare of others.
V709	OAP	102	Co-Worker Relationship. My amount of effort compared to the effort of my co-workers, the extent to which my co-workers share the load, and the spirit of teamwork which exists among my co-workers.
V710	OAP	103	Family Attitude Toward Job. The recognition and the pride my family has in the work I do.
V717	OAP	106	Work Schedule. My work schedule; flexibility and regularity of my work schedule; the number of hours I work per week.
V718	OAP	107	Job Security.
V719	OAP	108	Acquired Valuable Skills. The chance to acquire valuable skills in my job which prepare me for future opportunities.
V723	OAP	109	My Job as a Whole.

E. Alienation: Measures the degree that Air Force policy or procedures isolate one or distract from the formulation of high morale.

VARIABLE NUMBER	SURVEY	QUESTION NUMBER	
Q25	CEQ	25	It bothers me a great deal when I am ordered to do things which I don't see a good reason for doing.
Q26*	CEQ	26	You can trust the Air Force to keep a promise.

VARIABLE NUMBER	SURVEY	QUESTION NUMBER	
Q42	CEQ	42	I feel that the Air Force tries to control me in more ways than it needs.
Q44	CEQ	44	The Air Force places too much importance on military courtesy.
Q45	CEQ	45	The Air Force places too much importance on spit and polish.

* Questions which have been deleted.

Cohesion

The cohesion index encompasses measures of conflict, loyalty, trust, and teamwork present in a group. Also included are indicators of the organization's communications climate and general organization climate.

VARIABLE NUMBER	SURVEY	QUESTION NUMBER	
Q27	CEQ	27	I feel loyal to others within my work group.
Q29	CEQ	29	I will not let my work group down.
Q30	CEQ	30	I trust others within my work group.
Q31	CEQ	31	I play sports or otherwise socialize with others within my organization.
Q33	CEQ	33	The people in my work group work together as a team.
Q55	CEQ	55	To what extent is there conflict between your work group and another work group in your organization?

VARIABLE NUMBER	SURVEY	QUESTION NUMBER	
Q56	CEQ	56	To what extent is there competition between your work group and one or more other work groups which adversely affects the performance of your work group?
V410	OAP	60	My supervisor encourages teamwork.
V300	OAP	82	Ideas developed by my work group are readily accepted by management personnel above my supervisor.
V301	OAP	83	My organization provides all the necessary information for me to do my job effectively.
V302	OAP	84	My organization provides adequate information to my work group.
V303	OAP	85	My work group is usually aware of important events and situations.
V304	OAP	86	My complaints are aired satisfactorily.
V309	OAP	91	The information in my organization is widely shared so that those needing it have it available.
V314	OAP	96	My organization has clear-cut goals.
V317	OAP	99	The goals of my organization are reasonable.
V318	OAP	100	My organization provides accurate information to my work group.
V305	OAP	87	My organization is very interested in the attitudes of the group members toward their jobs.
V306	OAP	88	My organization has a very strong interest in the welfare of its people.

VARIABLE NUMBER	SURVEY	QUESTION NUMBER	
V307	OAP	89	I am very proud to work for this organization.
V308	OAP	90	I feel responsible to my organization in accomplishing its mission.
V310	OAP	92	Personnel in my unit are recognized for outstanding performance.
V311	OAP	93	I am usually given the opportunity to show or demonstrate my work to others.
V312	OAP	94	There is a high spirit of teamwork among my co-workers.
V313	OAP	95	There is outstanding cooperation between work groups of my organization.
V315	OAP	97	I feel motivated to contribute my best efforts to the missions of my organization.
V316	OAP	98	My organization rewards individuals based on performance.

Leadership Qualities/Values

This index measures the degree one's supervisor performs a variety of management and supervisory functions.

VARIABLE NUMBER	SURVEY	QUESTION NUMBER	
V404	OAP	58	My supervisor is a good planner.
V405	OAP	59	My supervisor sets high performance standards.
V410	OAP	60	My supervisor encourages teamwork.
V411	OAP	61	My supervisor represents the group at all times.

VARIABLE NUMBER	SURVEY	QUESTION NUMBER	
V412	OAP	62	My supervisor establishes good work procedures.
V416	OAP	65	My supervisor performs well under pressure.
V428	OAP	68	My supervisor explains how my job contributes to the overall mission.
V433	OAP	70	My supervisor lets me know when I am doing a good job.
V435	OAP	72	My supervisor always helps me improve my performance.
V442	OAP	76	My supervisor frequently gives me feedback on how well I am doing my job.
V445	OAP	64	My supervisor fully explains procedures to each group member.
Q32	CEQ	32	I think my supervisor is a good leader.
Q21*	CEQ	21	The supervisors I now serve under are the kind I would want to serve under in combat.
Q28	CEQ	28	My work group has confidence in its leaders.

* Questions which have been deleted.

APPENDIX E

FINAL FACTOR SOLUTION OF OAP VARIABLES

VARIABLE	FACTORS												
	1	2	3	4	5	6	7	8	9	10	11	12	13
V201	.07	.11	.63	.11	.11	.14	.15	.03	.12	-.04	.16	-.26	.04
V202	.08	.05	.56	.10	.14	.13	.03	.13	.02	.05	.09	-.05	-.01
V203	.10	.09	.66	.09	.11	.04	.11	.10	.03	.09	.06	.13	-.03
V206	-.08	-.15	.09	-.01	-.01	.02	-.03	-.00	-.06	-.06	.66	.06	.07
V207	.09	.26	.11	.07	.05	.10	.05	.10	.06	.74	-.07	-.03	-.02
V208	.08	.16	.10	.11	.03	.07	.07	.12	.08	.43	-.09	-.01	.02
V209	.19	.16	.41	.13	.15	.32	.16	.24	.09	.15	-.03	.05	-.05
V210	.08	.11	.62	.11	.14	.09	.13	.12	.06	.09	.03	.18	-.02
V211	.11	.14	.37	.13	.13	.25	.07	.20	.04	.22	-.12	.07	-.01
V212	.06	.08	.61	.12	.13	.15	.12	.04	.12	.03	.16	-.29	.10
V213	.14	.18	.21	.05	.10	.72	.09	.10	.05	.04	-.00	-.10	.02
V214	.19	.19	.30	.11	.10	.54	.14	.18	.17	.03	-.02	-.03	-.02
V215	.17	.24	.40	.12	.16	.17	.54	.11	.16	.06	.00	-.13	.02
V216	.32	.17	.20	.09	.17	.05	.11	.10	.15	.11	.04	-.03	-.03
V217	.28	.14	.24	.11	.07	.09	.13	.51	.12	.13	-.04	.16	.04
V218	-.04	.03	.18	.01	.06	.00	.06	-.09	.06	-.09	.36	-.08	.01
V221	.18	.29	.15	.09	.11	.18	.18	.46	.16	.19	-.17	.03	.09
V226	-.01	.07	-.07	.04	.03	.08	.10	.12	-.00	.00	.03	.66	.20
V227	-.06	.13	.01	.00	.10	.06	.10	.06	-.01	-.01	.14	.58	.12
V234	.13	.17	.10	.07	.14	.11	.08	.19	.46	.13	-.03	.09	-.05
V238	.22	.23	.13	.45	.13	.09	.11	.08	.22	.15	-.04	-.04	.03
V239	.16	.26	.12	.08	.12	.08	.18	.12	.60	.08	-.02	-.02	.04
V240	.26	.23	.25	.14	.04	.16	.15	.13	.45	.02	.06	-.03	.07
V241	.31	.44	.09	.11	.05	.20	.10	.09	.42	.09	-.01	.02	-.02
V249	.02	.02	.10	.09	.61	.30	.01	.07	.03	.02	.08	.03	-.07
V250	.04	.06	.13	.09	.80	.06	.08	.05	.02	.06	.01	.03	-.14
V251	.05	.07	.10	.06	.86	.06	.06	.04	.06	.05	.02	.01	-.13
V252	.01	.00	.17	.07	.85	.04	.07	.04	.05	.01	.03	.05	-.07
V253	.05	.03	.15	.06	.69	.03	.05	.08	.08	.01	.02	.16	-.05
V255	.05	.03	.06	.01	-.24	.02	.04	.05	.05	.02	.01	.13	.63
V258	.05	.05	-.04	-.02	-.20	.02	.01	.01	.00	.01	.01	.11	.60
V259	.18	.13	.15	.58	.11	.04	.03	.08	-.08	.03	.09	.10	-.01
V260	.21	.19	.15	.71	.09	.03	.07	.05	.00	.08	.03	.03	-.01
V261	.22	.20	.12	.67	.07	.08	.05	.05	.07	.02	.01	-.01	-.05
V264	.23	.27	.06	.62	.05	.07	.07	.05	.06	.11	.05	-.06	.03
V265	.27	.17	.10	.71	.08	.04	.08	.07	.06	.03	.00	.03	.00
V270	.11	.20	.10	.07	.11	.66	.10	-.00	.08	.12	.03	-.07	-.01
V271	.15	.17	.15	.06	.11	.76	.10	.05	.07	.02	.01	-.07	-.01
V272	.13	.08	.27	.07	.11	.33	.07	.27	.07	.09	.04	.06	.01
V273	.19	.21	.21	.14	.11	.13	.10	.75	.13	.12	.02	.06	.00

AD-A124 103 AN EVALUATION OF AN ATTITUDINAL MODEL TO MEASURE THE POTENTIAL FOR COMBAT..(U) AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH SCHOOL OF SYST.. S D WALLER

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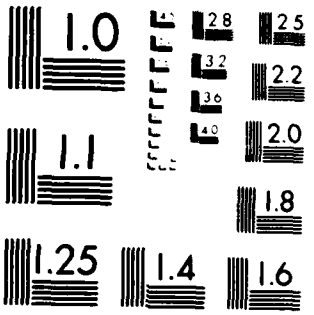

VARIABLE	FACTORS												
	1	2	3	4	5	6	7	8	9	10	11	12	13
V274	.20	.22	.22	.11	.11	.08	.07	**.74**	.13	.11	.04	.06	.04
V275	.19	.27	.38	.13	.15	.16	**.53**	.14	.21	.05	.00	-.13	.03
V276	.23	.28	.22	.08	.07	.13	.25	.08	**.46**	.08	.02	-.13	.10
V277	.14	.33	.04	.09	.08	.09	.06	.12	.08	**.70**	-.09	.02	.03
V278	-.08	-.13	.03	-.01	.04	-.07	-.02	-.02	-.01	-.02	**.75**	.05	.02
V279	-.08	-.25	.06	-.02	.11	-.05	.03	-.04	.04	-.08	**.38**	.15	.03
V300	.21	**.60**	.05	.12	.03	.17	.02	.02	.09	.06	-.03	-.10	.02
V301	.27	**.69**	.08	.13	.03	-.02	-.01	.14	.01	.17	-.10	-.04	.10
V302	.26	**.75**	.08	.10	.03	.01	-.04	.12	-.01	.17	-.06	-.07	.10
V303	.27	**.65**	.10	.13	.04	.05	-.01	.13	.02	.17	-.08	-.01	.05
V304	.31	**.64**	.04	.09	.03	.19	.09	.06	.10	.05	-.03	-.04	.03
V305	.27	**.77**	.04	.06	.03	.14	.09	.02	.09	.05	-.02	-.02	.04
V306	.25	**.77**	.04	.07	.02	.12	.10	-.00	.08	.04	-.00	-.02	.03
V307	.23	**.69**	.12	.12	.07	.08	.35	.01	.02	-.01	-.04	-.05	-.01
V308	.14	**.52**	.22	.14	.14	.05	.32	.03	.02	.04	-.02	-.00	-.05
V309	.26	**.74**	.10	.09	.02	.04	.04	.08	.03	.10	-.05	-.00	.02
V310	.25	**.66**	.04	.09	-.01	.11	.06	.03	.23	.07	-.03	-.03	-.02
V311	.27	**.49**	.20	.12	.01	.17	.15	.06	.16	-.02	.01	-.02	-.04
V312	.33	**.46**	.05	.41	.02	.14	.22	.07	.14	-.01	-.03	-.08	-.02
V313	.26	**.63**	.04	.25	-.05	.12	.12	.06	.05	.07	-.08	-.10	-.03
V314	.25	**.64**	.09	.16	-.00	-.02	.12	.15	.03	.08	-.10	-.03	-.04
V315	.21	**.58**	.16	.16	.11	.06	.37	.10	.07	.03	-.04	-.10	-.06
V316	.26	**.72**	.04	.09	-.00	.12	.11	-.01	.23	.05	-.03	-.00	-.03
V317	.20	**.64**	.06	.10	.07	.08	.25	.10	.06	.09	-.13	.03	-.05
V318	.28	**.77**	.07	.10	.02	.03	.07	.13	.02	.13	-.08	-.02	.01
V404	**.79**	.19	.02	.10	.05	.08	.05	.08	.03	.08	-.05	-.07	.06
V405	**.65**	.16	.14	.22	.08	.02	.01	.10	.10	.12	-.01	-.02	-.01
V410	**.74**	.20	.07	.16	.06	.09	.04	.07	.07	.05	-.02	-.01	.03
V411	**.75**	.21	.03	.10	.03	.12	.08	.03	.00	.05	-.02	-.04	.07
V412	**.82**	.22	.06	.12	.04	.08	.08	.09	-.00	.09	-.06	-.07	.08
V413	**.76**	.22	.07	.10	.02	.04	.04	.15	.03	.05	-.02	-.01	.02
V416	**.78**	.20	.03	.07	.03	.07	.08	.03	.01	.05	-.05	-.08	.05
V424	**.78**	.20	.02	.07	.05	.10	.09	.07	.01	.06	-.04	-.05	.02
V426	**.73**	.24	.08	.10	.06	.17	.08	.04	.08	-.01	-.02	-.03	-.04
V428	**.75**	.28	.13	.11	.02	.08	.07	.06	.09	-.00	-.04	.02	-.03
V431	**.79**	.25	.08	.09	.02	.11	.06	.05	.10	.01	-.02	-.03	-.02
V433	**.75**	.25	.06	.10	-.03	.11	.09	.01	.14	.04	-.04	.00	-.07
V434	**.40**	.06	.10	.16	.03	-.09	.01	.03	.04	.00	.02	.15	-.11
V435	**.83**	.23	.06	.11	.01	.04	.10	.04	.07	.02	-.05	-.02	-.01
V436	**.74**	.26	.07	.11	.03	.02	.11	.05	.12	.07	-.06	-.00	.02
V437	**.79**	.25	.06	.09	-.00	.08	.13	.02	.08	-.01	-.03	.00	-.00

VARIABLES	FACTORS												
	1	2	3	4	5	6	7	8	9	10	11	12	13
V439	.67	.17	.01	.07	-.02	.02	.08	.06	-.01	.03	-.03	.04	.11
V442	.72	.24	.07	.11	-.05	.12	.09	.03	.13	-.00	-.03	.04	-.05
V445	.80	.24	.04	.10	.02	.03	.04	.12	.03	.06	-.05	-.02	.06
V705	.19	.31	.28	.16	.09	.18	.42	.13	.08	.05	.00	-.02	-.00
V709	.25	.30	.04	.43	-.00	.12	.29	.05	.15	.05	-.08	-.08	.05
V710	.18	.31	.18	.11	.08	.09	.46	.05	.09	.08	-.05	-.07	.03
V711	.39	.37	.04	.18	-.01	.07	.25	.10	.19	.15	-.04	-.07	.06
V712	.31	.35	.09	.11	.00	.05	.26	.15	.19	.15	-.03	-.09	.10
V717	.17	.33	-.03	.10	.04	.36	.25	.03	.05	.16	-.14	-.02	.01
V718	.19	.33	.08	.13	.05	.18	.41	.13	.10	.13	-.06	.00	-.06
V719	.20	.35	.23	.07	.04	.14	.44	.07	.21	.04	-.01	-.22	.04
V723	.27	.39	.20	.14	.06	.17	.60	.12	.16	.05	-.03	-.15	.01

(1) Supervision/Management
(2) Organizational Climate
(3) Task Characteristics
(4) Perceived Productivity
(5) Job Desires
(6) Task Autonomy
(7) Job Pride/Satisfaction
(8) Job Performance Goals
(9) Advancement/Recognition
(10) Work Support
(11) Work Interferences
(12) Work Repetition
(13) Desired Repetitive Easy Tasks

APPENDIX F

FINAL FACTOR SOLUTION OF COMBAT EFFECTIVENESS MODEL

VARI-ABLES	FACTORS								
	1	2	3	4	5	6	7	8	9
Q1	.21	.27	.22	.19	.35	.38	.19	-.03	.07
Q2	.24	.25	.28	.21	.09	.52	.20	-.00	.04
Q3	.41	.23	.47	.09	.28	.23	.14	.18	-.06
Q4	.26	.29	.20	.21	.30	.53	.20	-.00	.02
Q5	.27	.34	.27	.18	.11	.64	.17	.03	.02
Q6	.29	.35	.20	.19	.18	.60	.21	.00	.05
Q7	.24	.31	.20	.19	.10	.59	.20	-.02	.03
Q8	.30	.12	.14	.33	.12	.10	.06	.23	-.09
Q11	.26	.14	.18	.15	.11	.13	.68	.04	.06
Q12	.24	.15	.17	.10	.11	.18	.74	.04	.02
Q13	.34	.15	.12	.11	.13	.15	.66	.06	.06
Q14	.36	.12	.05	.13	.12	.13	.49	.08	.02
Q19	.00	.08	.20	.54	.19	-.03	.04	.05	.06
Q20	.05	.07	.15	.56	.17	.00	.03	.06	-.00
Q22	.19	.12	.39	.16	.33	.05	.16	.11	.02
Q23	.16	.12	.41	.26	.32	-.04	.13	.21	-.01
Q24	.42	.28	.28	.06	.48	.32	.13	.13	-.03
Q27	.16	.17	.27	.20	.59	.01	.10	.04	.06
Q28	.36	.48	.17	.12	.37	.22	.12	.10	.00
Q29	.11	.15	.35	.33	.47	-.05	.09	.02	.07
Q30	.21	.21	.20	.18	.61	.15	.11	.02	.08
Q32	.21	.77	.10	.08	.19	.16	.10	.07	-.02
Q33	.24	.38	.16	.16	.59	.29	.09	-.02	.06
Q34	.09	.11	.30	.44	.11	.10	.05	-.01	.03
Q37	.58	.21	.21	.11	.29	.24	.12	.15	.01
Q38	.41	.16	.46	.25	.20	.18	.10	.15	-.03
Q44	-.12	.00	-.14	-.14	-.02	.03	-.05	-.76	-.14
Q45	-.13	-.02	-.10	-.12	-.02	.01	-.06	-.75	.13
Q48	.39	.13	.25	.24	.19	.08	.19	.25	-.05
Q50	.25	.05	.01	.53	.01	.09	.07	.14	-.10
Q51	.25	.07	.05	.59	.08	.16	.09	.03	-.03
Q52	.19	.19	.30	.41	.07	.40	.21	-.05	.04
Q53	.18	.24	.20	.35	.29	.40	.19	-.04	.07
Q54	.18	.10	.21	.66	.08	.24	.07	.01	-.04
Q55	-.21	-.04	-.04	.07	-.06	-.07	-.09	-.11	-.69
Q56	-.12	.00	-.05	.07	-.08	-.01	-.10	-.14	-.76
Q58	.16	.06	.04	.50	-.01	.10	.12	.04	-.06
V207	.21	.13	.15	.12	.05	.11	.50	.02	.14
V215	.17	.17	.74	.15	.11	.13	.06	.07	.02
V275	.20	.19	.73	.16	.14	.15	.06	.06	.02
V404	.19	.81	.09	.07	.08	.08	.08	.01	.05
V405	.17	.66	.13	.13	.12	.05	.10	-.03	.06
V410	.20	.75	.16	.09	.16	.04	.05	-.04	.05
V411	.21	.76	.11	.07	.11	.07	.07	.04	.01
V412	.21	.82	.13	.09	.12	.11	.10	-.01	.04
V416	.20	.78	.09	.04	.10	.09	.08	.06	.01
V428	.28	.70	.18	.12	.08	.12	.05	-.01	-.02
V433	.26	.73	.18	.05	.08	.11	.09	.06	-.02
V435	.26	.78	.14	.07	.09	.17	.08	.02	-.00
V442	.26	.69	.15	.07	.07	.17	.06	.04	-.04
V445	.22	.76	.09	.11	.09	.14	.13	-.02	.01
V300	.59	.19	.13	.08	.12	.11	.10	.08	.05
V301	.67	.22	.11	.18	.02	.15	.19	-.06	.08

VARIABLES	FACTORS								
	1	2	3	4	5	6	7	8	9
V302	.74	.22	.10	.18	.01	.11	.19	-.05	.09
V303	.64	.24	.11	.15	.04	.10	.18	-.04	.05
V304	.64	.29	.18	.06	.11	.12	.12	.11	.06
V305	.75	.24	.19	.03	.11	.14	.09	.11	.01
V306	.77	.22	.20	.04	.14	.09	.09	.12	-.01
V307	.65	.20	.39	.12	.17	.10	.07	.12	-.00
V308	.47	.16	.42	.24	.17	-.04	.12	.06	.06
V309	.73	.24	.14	.19	.08	.07	.16	-.02	.07
V310	.66	.23	.16	.10	.11	.08	.14	.05	.06
V311	.49	.27	.27	.17	.12	.09	.12	.03	.04
V312	.42	.31	.22	.07	.47	.22	.03	-.02	.06
V313	.61	.24	.12	.11	.26	.20	.12	.02	.20
V314	.60	.22	.14	.20	.14	.10	.13	.03	.08
V315	.52	.20	.45	.18	.21	.06	.12	.06	.05
V316	.70	.24	.19	.11	.13	.11	.12	.14	.03
V317	.58	.19	.25	.18	.15	.08	.19	.07	.07
V318	.73	.24	.15	.19	.07	.11	.21	-.02	.10
V705	.27	.18	.51	.16	.18	.14	.14	-.01	.05
V709	.25	.24	.21	.08	.46	.25	.10	-.03	.04
V710	.24	.13	.48	.15	.15	.11	.14	.02	.04
V718	.28	.14	.42	.14	.15	.15	.17	.06	.07
V719	.32	.19	.54	.14	.05	.22	.07	.04	.04
V723	.33	.23	.70	.10	.15	.23	.10	.07	.01

(1) Organizational Climate/Morale
(2) Leadership Qualities/Values
(3) Individual Morale
(4) Effects of Training
(5) Cohesion
(6) OJT/Technical Training
(7) Logistics
(8) Alienation
(9) Work Group Conflict

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